MYSTERY-ADVENTURE-ROMANCE

Science WONDER Stories

May

25 CENTS Canada 30¢

A GERNSBACK PUBLICATION

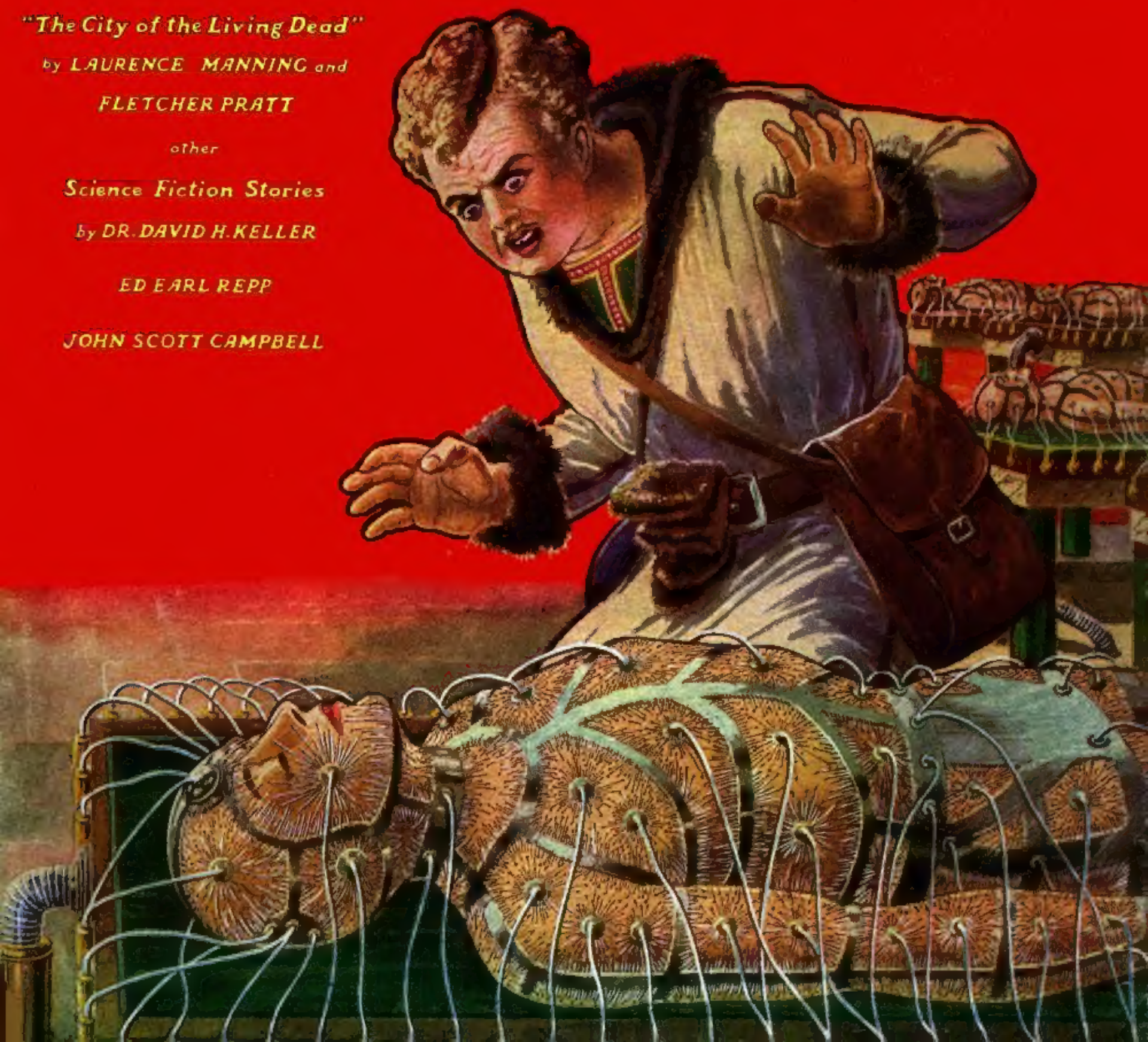
HUGO GERNSBACK Editor

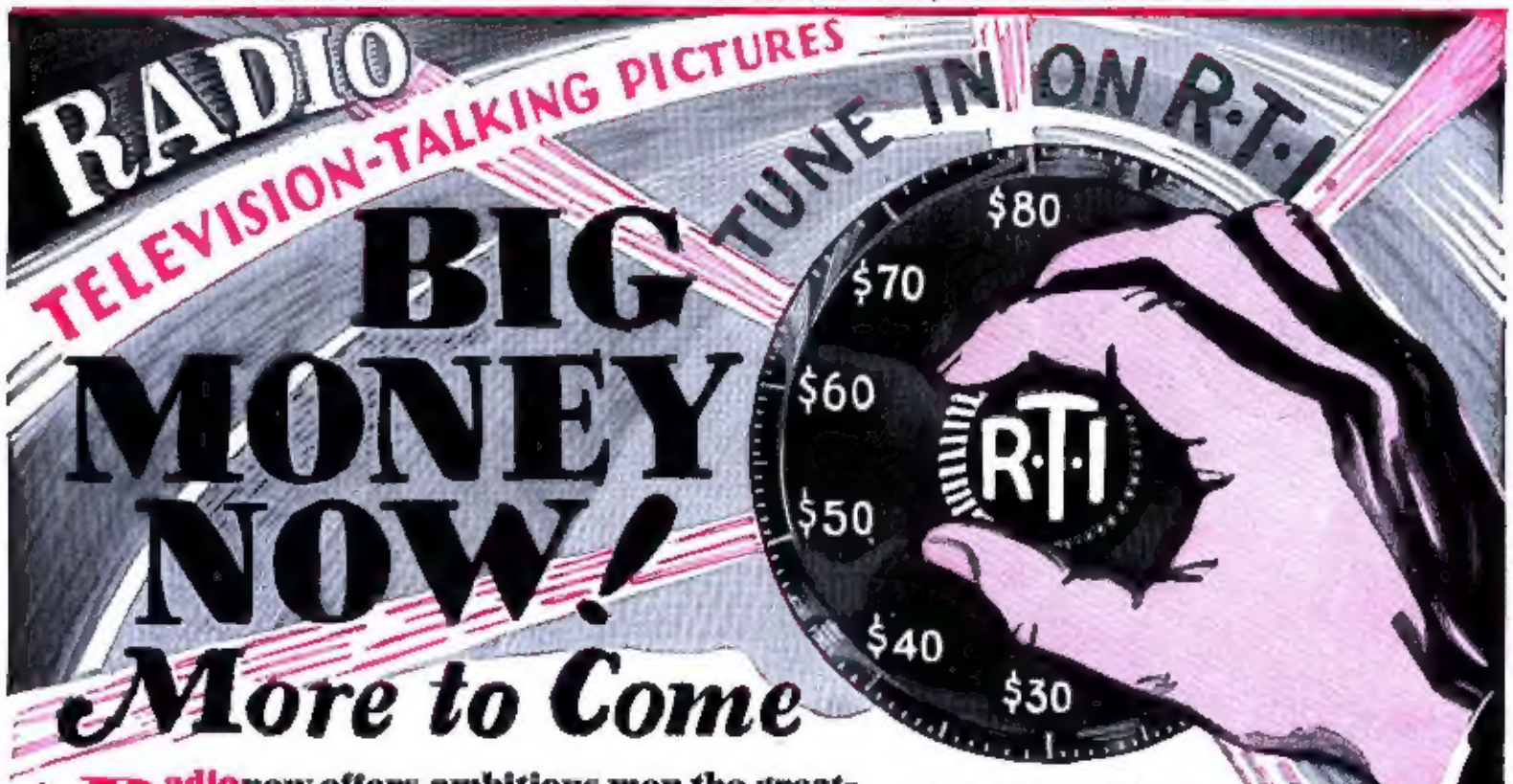
"The City of the Living Dead"
by LAURENCE MANNING and
FLETCHER PRATT

other
Science Fiction Stories
by DR. DAVID H. KELLER

ED EARL REPP

JOHN SCOTT CAMPBELL





BIG MONEY NOW!

More to Come

Radio now offers ambitious men the greatest Money-Making Opportunity the world has ever seen! Hundreds of trained service men are needed by radio dealers, jobbers, and manufacturers!

GOOD JOBS are open for men in all of the many branches of Radio, where qualified men easily earn $60 to $100 per week and even $10,000 a year jobs are plentiful.

BIG MONEY for Spare-Time Radio Work is easily made in every city and village. You can now qualify for this Big-Money work quickly through R. T. I. Get the Big Money Now and go up and up in this Big Pay field. The Radio industry calls for More Men, and R. T. I. supplies what the industry wants you to know.

Supervised by Radio Leaders

R. T. I. training is prepared and supervised by prominent men in radio, television and talking picture engineering; distributing; sales; manufacturing; broadcasting, etc. These men know what you must know to make money in Radio. You learn easily in spare time at home with the R. T. I. wonderful combination of Testing Outfits, Parts, Work Sheets, Job Tickets. It is easy, quick and practical, covers everything in Radio—includes Talking Pictures and the latest in Television. Get started in Big Money Radio work now.

$60-$70-$80-PER WEEK AND UP. That's what R. T. I. training leads to. Send for the R. T. I. Book and see for yourself.

No Experience Needed

ALL YOU NEED is ambition and the ability to read and write. The Radio industry needs practical trained men. Remember, R. T. I. makes it easy to earn spare time money while you learn at home.

More to come

THE MEN who get into this Big-Money field now will have an unlimited future. Why? Because this billion dollar Radio industry is only a few years old and is growing by leaps and bounds. Get in and grow with it. $10 to $25 per week and more is easily made in spare hours while you are preparing for Big Money. TELEVISION, too, will soon be on the market, so the leaders say. Be ready for this amazing new money-making field. Remember, R. T. I. "3 in 1" home-training gives you all the developments in Television and Talking Picture Equipment, together with the complete Radio Training.

Warning

Do not start R. T. I. training if you are going to be satisfied to make $15 or $20 per week more than you are now. Most R. T. I. men will make that much increase after a few weeks. There is no reason to stop short of the Big Money Jobs or the Big Profits in a spare time or full time business of your own. No capital needed. Get started with R. T. I. now. Make money while you learn at home.

R. T. I. Book Now FREE

The thrilling story of Radio, Television and Talking Pictures is told with hundreds of pictures and facts—its hundreds of big money jobs and spare time money-making opportunities everywhere. Send for your copy now. USE THE COUPON.

LET F. H. SCHNELL AND R. T. I. ADVISORY BOARD HELP YOU

Mr. Schnell, Chief of the R. T. I. Staff, is one of the ablest and best known radio men in America. He has twenty years of Radio experience. First to establish two-way amateur communication with Europe.

Former traffic manager of American Radio Relay League. Lieutenant Commander of the U. S. N. R. Inventor and designer of Radio apparatus. Consultant Engineer to large Radio manufacturers.

Assisting him is the R. T. I. Advisory Board composed of men prominent in the Radio industry.

THE R. T. I. ADVISORY BOARD. These men are executives with important concerns in the radio industry—manufacturing, sales, service, broadcasting, engineering, etc., etc. They supervise R. T. I. Work Sheets, Job Tickets, and other training methods.

RADIO & TELEVISION INSTITUTE
Dept. 765 4806 St. Anthony Ct., Chicago

RADIO & TELEVISION INSTITUTE
Dept. 765 4806 St. Anthony Court, Chicago

Send me Free and prepaid your BIG BOOK "Tune In On Big Pay" and full details of your three-in-one Home Training (without obligating me in any way).

Name.....

Address.....

City.....State.....

SCIENCE FICTION PLUS!

Have you ever seen a Grampite —or a hahoe? Have you ever imagined the fearful, wonderful adventures that might lie before the bold man who sought to conquer an Amazon queen on the planet Venus? You'll find a weird, new world of strange sights and thrills as your imagination soars to astonishing heights in this tale of life millions of miles away.

THE PLANET OF PERIL

By Otis Adelbert Kline

Suddenly transported by psychic wizardry to the beautiful and mysterious neighbor planet, Venus, Robert Grandon, who all his life had craved adventure, found it a'plenty.

Grandon was a fighter, and fighting ability was the price of life on Venus. His adventures with savage men, ferocious beasts, gigantic reptiles, enormous, blood-sucking bats and other horrible animals, follow in such quick succession that the interest in the story is at white heat all the time.

Then there is Vernia. Vernia, queenly, beautiful, and tyrannical, who led an army against Grandon. She won and she lost, but the losing brought her the greater joy.

For that vast army of men and women who love a tale that stirs the imagination, a tale of amazing adventure, of fearful and wonderful happenings, a tale the like of which has never been told before, this book has been written.

At positively no increase in price, the readers of SCIENCE WONDER STORIES may secure a genuine, first edition copy of "The Planet of Peril," autographed by its celebrated author, Otis Adelbert Kline. As this edition is very limited, we advise you to send in your money at once.

Stellar Publishing Corp. SW-5
96-98 Park Place
New York, N. Y.

Gentlemen:

I enclose $2.00 for an autographed, first edition copy of Otis Adelbert Kline's remarkable tale of Venus,

THE PLANET OF PERIL

Name.....

Address.....

City and State.....

It's a story with "a real kick."

Publication Office, 404 North Wesley Ave., Mt. Morris, Ill.
Editorial and General Offices, 96-98 Park Place, New York City.
Published by
STELLAR PUBLISHING CORPORATION
H. GERNSBACK, Pres. S. GERNSBACK, Treas. I. S. MANHEIMER, Sec'y.

Vol. 1, No. 12 MAY, 1930

Table of Contents—May

GULF STREAM GOLD
By Ed Earl Repp.....1062
Beneath the sea's surface, they found limitless stores of gold . . . but then Fate intervened . . .

THE INFINITE BRAIN
By John C. Campbell.....1076
It was only a metal machine, yet its ruthless power held a world at bay.

THE DAY OF THE BEAST
By D. D. Sharp.....1094
He caused the beasts to grow to tremendous size; but when one of them got out of control . . .

THE CITY OF THE LIVING DEAD
By Laurence Manning and Fletcher Pratt.....1100
There was only one living person in that great city . . . the man in the metal mask, who told a fearful story.

THE EVENING STAR
(A story in two parts) (Part 2)
By Dr. David H. Keller.....1108
Haughty were the proud Conquerors on Venus; but then the horde of Monsters attacked . . .

THE HORRIBLE TRANSFORMATION
By J. Stallworth Daniels.....1130
He was trapped in the jungle by that gigantic gorilla. But then it began to speak!

SCIENCE QUESTIONS AND ANSWERS.....1138

THE READER SPEAKS
Letters from Our Readers.....1139

SCIENCE NEWS OF THE MONTH..1146

ON THE COVER

this month, taken from "The City of the Living Dead," is shown Hal Hallstrom, the brave traveler, coming suddenly upon one of "the living dead." Around the great hall are countless others . . . people who have given up their consciousness to live the false life of the Adventure Machines. The silver wires leading to their bodies enable them to receive the sensations which make up their experiences.

NEXT MONTH

A SUBTERRANEAN ADVENTURE, by George Paul Bauer. The well-known author of that marvelous story "Below the Infra-Red"—one of the masterpieces of science fiction—now gives us what he himself calls his greatest story. Here we have a swiftly-moving tale of the adventures of two intrepid explorers into the unknown dangers of the earth's interior. They had hoped to drive a tunnel clear through the earth, but instead they came upon something so remarkable and experienced such mysteries that even to the teller of the story it almost escapes belief.

THE MARTIAN REVENGE, by Henrik Dahl Juve. You can always depend on this author to furnish an unusual story, and in this interplanetary adventure he has indeed fulfilled our expectations. He has shown us indeed the perils that attend communication with a strange civilization and in this story has illustrated vividly the horror that might attend the revenge of an outraged race. Indeed, through the stirring story, he shows us many of the things which must be avoided if interplanetary travel is to be a success.

THE INCREDIBLE MONSTROSITY, by Walter Kateley. Mr. Kateley gives us now a story of an entirely different type. Imagine a great sphere of metal 500 feet in diameter rushing across our continent at a speed of sound. Here is truly an instrument of power and destruction such as no man has ever seen. Yet the use of this incredible monstrosity will be as complete a surprise to you as it was to us. Mr. Kateley has built about the monstrosity a tale of breathless events and intriguing mystery.

THE TIME RAY OF JANDRA, by Raymond A. Palmer. This story was unfortunately crowded out of the April issue. Most of the time-traveling stories that we publish are those dealing with the future. But under restricted conditions it is just as possible for one to travel into the past and discover the truth of many of the mysteries which fill the pages of man's history. In this splendid story, Mr. Palmer takes us back into the past and gives us a swiftly-moving tale of the adventures that will confront one in a strange land and time.

AND OTHERS.

SCIENCE WONDER STORIES—Monthly—Entered as second class matter in the Post Office at Mt. Morris, Ill., under act of March 3, 1879. Title registered U. S. Patent Office. Trademarks and copyrights by permission of Gernsback Publications, Inc., 98 Park Place, New York City, owner of all trademark rights. Copyright, 1930, by Gernsback Publications, Inc. Text and illustrations of this magazine are copyright and must not be reproduced without permission of the copyright owners.
SCIENCE WONDER STORIES is published on the 3rd of the preceding month. 12 numbers per year, subscription price is $1.50 a year in United States and its possessions. In Canada and foreign countries, $2.00 a year. Single copies 15c. Address all contributions for publication to Editor, SCIENCE WONDER STORIES, 96-98 Park Place, New York. Publishers are not responsible for lost MSS. Contributions cannot be returned unless authors remit full postage.

SCIENCE WONDER STORIES is for sale at principal newsstands in the United States and Canada.
IF YOU WISH TO SUBSCRIBE to SCIENCE WONDER STORIES, make out all remittances to the Stellar Publishing Corp. Be sure to mention the name of magazine you wish to subscribe for, as we are also agents for the following magazines: RADIO-CRAFT, AIR WONDER STORIES and SCIENTIFIC DETECTIVE MONTHLY, subscription price of which is the same as SCIENCE WONDER STORIES. Subscriptions can be made in combination with the above publications, at a reduced club rate. Ask for information. Subscriptions start with current issue.
WHEN YOUR SUBSCRIPTION EXPIRES, we enclose a renewal blank in the last number. No subscriptions continued unless renewal remittance received.
CHANGE OF ADDRESS. Always give us old as well as new address and notify us as far in advance as possible.

STELLAR PUBLISHING CORPORATION
Publication Office, 404 North Wesley Avenue, Mt. Morris, Illinois. Editorial and General Offices, 96-98 Park Place, New York City.
Chicago Advertising Representative—L. R. McClure, 737 North Michigan Ave.

London Agent: Hachette & Cie., 16-17 King William St., Charing Cross, W.C. 2
Paris Agent: Hachette & Cie., 111 Rue Reaumur
Australian Agents: McGill's Agency, 179 Elizabeth St., Melbourne

Learning about the converter used to change alternating to direct current at the great Coyne Shops

Coyne men working on the valves and timing of a Velie Radial Aircraft Engine

~follow this amazingly easy way into ELECTRICITY

-and youire through in 90 DAYS!

SAY good-bye to 25 and 35 dollars a week. Let me show you how to qualify for jobs leading to salaries of $50, $60 and up, a week, in ELECTRICITY—NOT by correspondence, but by an amazing way to teach, RIGHT HERE IN THE GREAT COYNE SHOPS. You become a practical electrician in 90 days! Getting into Electricity is far easier than you imagine!

LEARN—*by doing the work with your own hands* IN 90 DAYS

The secret of Coyne-training is that it is ALL PRACTICAL work. No books—no dry lessons—no useless theory. In the great shops of Coyne you learn the "ins and outs" of Electricity by actual work on real electrical equipment—the finest outlay in the country. And best of all—experts work right with you every step of the way, showing you all the electrical secrets that are essential to your success!

NO BOOKS—NO PRINTED LESSONS

Experience not required I don't care if you don't know an armature from an air brake—I don't expect you to! I don't care if you're 16 years old or 48—it makes no difference! Don't let lack of money stop you either. Most of the men at Coyne have no more money than you have.

Big pay jobs are waiting Our employment bureau gives you lifetime service. Two weeks after graduation, Clyde F. Hart got a position as electrician for the Great Western Railroad at over $100 a week. That's not unusual. We can point to Coyne men making up to $600 a month. You can go into radio, battery, or automotive electrical business for yourself and make up to $15,000 a year.

Railroad fare allowed Make up your mind today to get into one of these big pay electrical jobs. If you act now—I'll allow your railroad fare to Chicago and give you these courses free: AVIATION ELECTRICITY, RADIO and AUTOMOTIVE ELECTRICITY! And besides that, I help you to a part time job while learning! Don't lose another minute—make this the turning point in your life. Send this coupon RIGHT NOW.

COYNE
ELECTRICAL SCHOOL
500 S. Paulina St., Dept. 50-85
Chicago, Ill.

Get this
FREE BOOK

This school is 30 years old—endorsed by many large electrical concerns. Simply mail the coupon and let me tell you all about it in the big, free Coyne book.

USE THE COUPON

Mr. H. C. Lewis, *President*
COYNE ELECTRICAL SCHOOL, Dept. 50-85
500 S. Paulina St., Chicago, Ill.

Dear Mr. Lewis:

Without obligation send me your big free catalog and all details of Railroad Fare to Chicago, Free Employment Service, Radio, Aviation Electricity, and Automotive Courses, and how I can "earn while learning."

Name.....

Address.....

City.....State.....

NEW SCIENCE FICTION SERIES

THESE small books, illustrated by artist Paul, are printed on a good grade of paper. They contain brand new stories never published before in any magazine.

Each book (size 6x8 in.) contains one or two stories by a well-known scientific fiction author.

1—THE GIRL FROM MARS
By Jack Williamson and Miles J. Breuer

2—THE THOUGHT PROJECTOR
By David H. Keller, M.D.

3—AN ADVENTURE IN VENUS
By R. Michelmore

4—WHEN THE SUN WENT OUT
By Leslie Stone

5—THE BRAIN OF THE PLANET
By Lilith Lorraine

6—WHEN THE MOON FELL
By Charles H. Calladay

7—THE MECHANICAL MAN
By Amelia Reynolds Long

The age of the robot is just dawning and some of its infinite possibilities, Miss Long dips into it in this thrilling story.

THE THOUGHT STEALER (Book 7)
By Frank Reeves

That it may be possible, sometime in the future, for a brilliant scientist to penetrate the minds of others and examine their thoughts, is the theme of this engrossing story.

8—THE TORCH OF RA
By Jack Bradley

All about us lies a tremendous amount of untouched power; in the sun, in the cosmic rays, etc. This power, if obtained and concentrated, might be put to great use.

9—THE VALLEY OF THE GREAT RAY
By Fanny E. Blank

We know very little about the real potentialities of matter. There may be great civilizations that have found and utilized these potentialities far beyond our own conception.

10—THE ELIXIR
By H. W. Hinshaw

Brain power is often dependent on the influences of our glands. By proper stimulation of some kind, it may be possible in the future to produce great geniuses.

11—THE THOUGHT TRANSLATOR
By Merlin Eberle

Mental telepathy is becoming generally accepted as an accomplished fact. Some of its uses, especially by mechanical means, may be very tragic or very amusing.

THE CREATION (Book 11)
By M. Miltes Mitchell

It should be possible in the future to create living beings synthetically, and when this is done, there will be some amazing results.

12—THE LIFE VAPOR
By Clyde Farrar

Mr. Farrar is evidently an expert in his subject. He shows how, by proper control, it may be possible to change the entire course of human life.

THIRTY MILES DOWN (Book 12)
By D. D. Sharp

What lies far beneath the surface of the earth, still remains quite a mystery to us. Mr. Sharp has created a rather amazing theory.

MAIL COUPON NOW

STELLAR PUBLISHING CORP.,
SW-3 96 Park Place, New York, N. Y.

Gentlemen:
I am enclosing herewith $..... for which please send me prepaid books which I have marked with an X:

☐ 1	☐ 4	☐ 7	☐ 10
☐ 2	☐ 5	☐ 8	☐ 11
☐ 3	☐ 6	☐ 9	☐ 12

Name .....

Address .....

City..... State.....

SPECIAL OFFER $1 All 12 Books for

YOUR CHOICE of Any 5 Books for 50c

VOLUME 1
No. 12

Science WONDER Stories

MAY
1930

. . . . . Prophetic Fiction is the Mother of Scientific Fact . . . . .

HUGO GERNSBACK, *Editor-in-Chief*

DAVID LASSER, *Managing Editor*
M. E. DAME, *Associate Editor*
FRANK R. PAUL, *Art Director*
C. P. MASON, *Associate Editor*

ASSOCIATE SCIENCE EDITORS

ASTRONOMY

Professor Samuel G. Barton
Flower Observatory, University of Pennsylvania.

Dr. Clyde Fisher, Ph.D., LL.D.
Curator, The American Museum of Natural History.

Professor Willem J. Luyten, Ph.D.
Harvard College Observatory.

ASTROPHYSICS

Donald H. Menzel, Ph.D.
Lick Observatory, University of California.

BOTANY

Professor Elmer G. Campbell
Transylvania College.

Professor Margaret Clay Ferguson, Ph.D.
Wellesley College.

Professor C. E. Owens
Oregon Agricultural College.

CHEMISTRY

Professor Gerald Wendt
Dean, School of Chemistry and Physics, Pennsylvania State College.

ELECTRICITY

Professor F. E. Austin
Formerly of Dartmouth College.

ENTOMOLOGY

William M. Wheeler
Dean, Bussey Institution for Research in Applied Biology, Harvard University.

MATHEMATICS

Professor C. Irwin Palmer
Dean of Students,
Armour Institute of Technology.

Professor James Byrnie Shaw
University of Illinois.

Professor Waldo A. Titsworth, S.M.
Alfred University.

MEDICINE

Dr. David H. Keller
Western State Hospital.

PHYSICS AND RADIO

Dr. Lee deForest, Ph.D., D.Sc.

PHYSICS

Professor A. L. Fitch
University of Maine.

PSYCHOLOGY

Dr. Marjorie E. Babcock
Acting Director, Psychological Clinic, University of Hawaii.

ZOOLOGY

Dr. Joseph G. Yoshioka
Illinois State Institute for Juvenile Research.

These nationally-known educators pass upon the scientific principles of all stories.

SCIENCE FICTION WEEK

March 31 to April 7, 1930

By HUGO GERNSBACK

SOME time ago, one of our readers requested that we designate a week to be devoted to the presentation of science fiction to the public at large.

It was in the mind of the originator of the idea that, if the public at large would learn more about the aims and purposes of science fiction, a tremendous following could be achieved, not only for science fiction itself as an ideal, but incidentally as a means of practical help to the public itself.

Great and beneficial ideas to the public have met with opposition, ever since the world began. No matter how good a new idea, no matter how greatly it is certain to benefit the public—the public, as a rule, will have none of it in its initial stages, although the benefits are apparent.

When printing was originated, no one could see its great importance. When Fulton invented his steamboat and Morse his telegraph, both were ridiculed; and so it was with the telephone, phonograph, motion picture, and other important inventions that make up our civilization.

It is true, also, of science fiction. Not only is science fiction an idea of tremendous import, but it is to be an important factor in making the world a better place to live in, through educating the public to the possibilities of science and the influence of science on life which, even today, are not appreciated by the man in the street.

The average person considers science something too difficult for him to try to understand. With this mistaken idea, thousands of people are endlessly sick year in and year out, and die, simply because of this ignorance. DESPITE THE TREMENDOUS ADVANCE OF SCIENCE, THE WORLD IS MENTALLY STILL IN THE MIDDLE AGES.

No one can doubt, then, that science fiction—which means thrilling adventure stories based on future scientific achievements; stories of trips to other planets and adventures on those worlds with strange civilizations; trips into the interior of the earth; stories of travels into the future and the past; all of these, and more—is a means of educating the public to the meaning of science, as well as providing the most delightful and stimulating entertainment.

Talk to the average man and woman about the most obvious scientific achievement of the day, and they will know little about it, or their knowledge will be so superficial that it cannot be used to assist them in their lives or in bettering their condition. This is an unfortunate situation; and whatever can be done to rectify it, will be so much of a gain to the world at large.

If every man, woman, boy and girl, could be induced to read science fiction right along, there would certainly be a great resulting benefit to the community, in that the educational standards of its people would be raised tremendously. Science fiction would make people happier, give them a broader understanding of the world; make them more tolerant. This is not an idle statement, but a truth which a moment's reflection will easily reveal.

The purpose, then, of "Science Fiction Week" is to induce every true lover of science fiction to spend this allotted time in educating friends and acquaintances, and others, in the merits of science fiction. Copies of magazines featuring science fiction, such as SCIENCE WONDER STORIES, AIR WONDER STORIES, and others, should be loaned to friends and acquaintances. Letters should be written to them. Those occupied in offices, stores, factories, or attending colleges or schools, should call the attention of their co-workers to Science Fiction Week, *and make them read a few stories* to convince them that they have overlooked something of great importance. It has been proved many times that, if the average man, who looks askance on science fiction, is once persuaded to peruse a few of these stories, he almost immediately becomes converted and reads science fiction in preference to almost any other form.

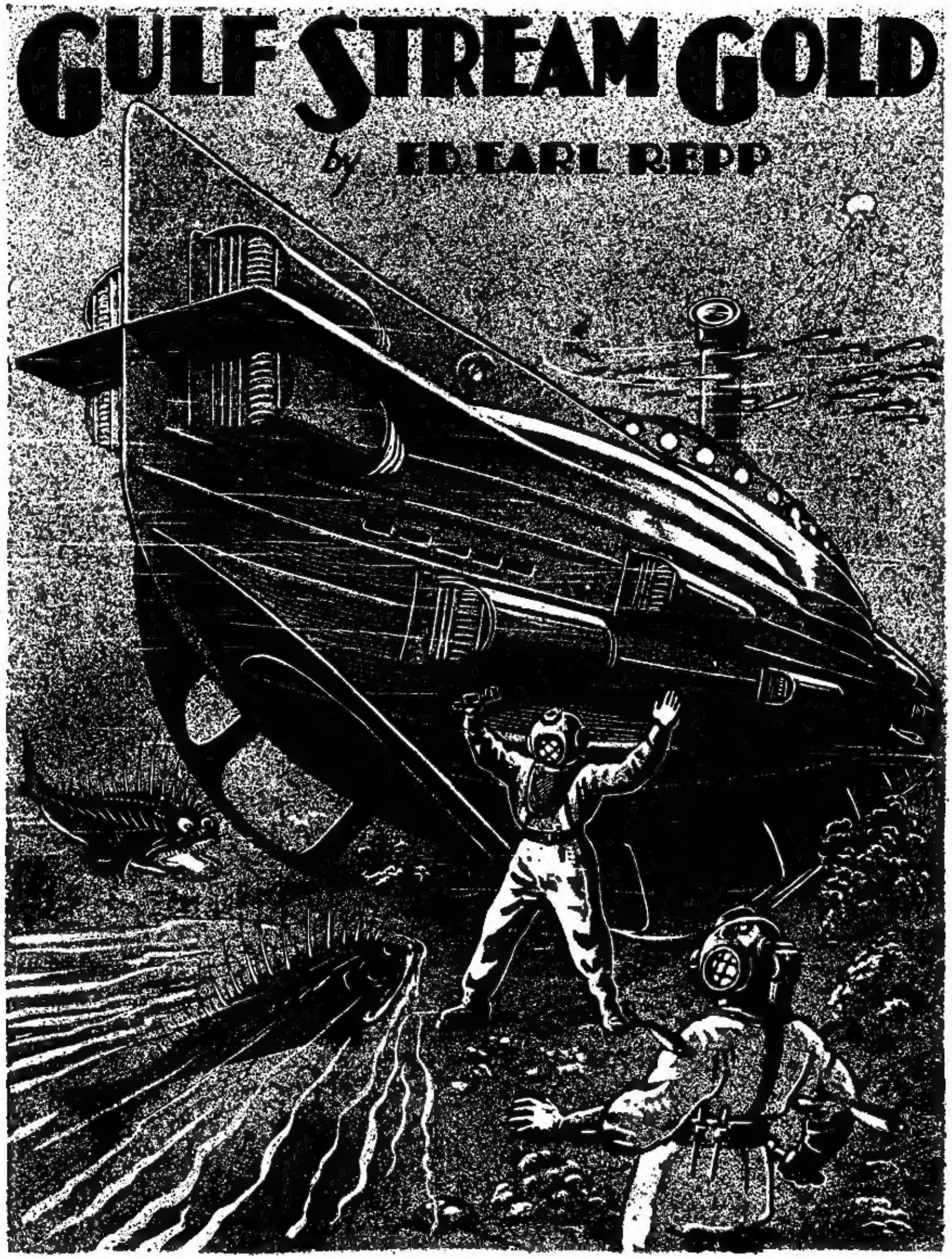
A number of our readers have already volunteered to lecture on science fiction to different assemblies of friends and co-workers; while others have sent in for thousands of posters and stickers, which our publications are distributing to science-fiction lovers in all parts of the country. These posters are put on display, to acquaint the public with the importance of science fiction.

But, even should you be too late for "Science Fiction Week," or if you have already made your effort during this week to acquaint the public with science fiction, remember that, as a lover of this new form of story, you have the same mission to fulfil all year 'round.

It is from these efforts, of you, the pioneers, that science fiction will become the mighty force it is destined to be; and you will then know that, because of you, the world has become a better place to live in.

GULF STREAM GOLD

by EDEARL REPP



(Illustration by Paul)

Then with a suddenness that astonished me, the two toad-fish darted toward the *Barracuda*. The abruptness of their attack held me spellbound.

GULF STREAM GOLD

By the Author of "The Radium Pool," "The Metal World," "Beyond Gravity," etc.

THERE was something pitiful in the appearance of the man when I first beheld him. He was a wizened, anemic-looking fellow who appeared to have long suffered the ravages of some dreadful disease.

His hands trembled, his shoulders drooped and his eyes, like pools of opalescent fire deep-set in crater-like sockets, gleamed with a peculiar light.

His body was slightly bent in such a way that I keenly suspected that he also suffered some growing organic disorder and I could scarcely suppress a feeling of sympathy for him. And when I learned what lay behind his suffering face, my opinion of David Cantrell rose abruptly.

For years I have maintained at Santa Monica, California, a patent brokerage office, whose western exposure looked out over the blue-green expanse of the Pacific.

The day I first became acquainted with Cantrell, I was standing at this treasured spot when the telephone jingled sharply. Lazily I picked up the receiver and emitted a pleasant hello.

"San Diego calling!" the operator announced. "Is Mr. Roberts there?"

"Roberts speaking!" I replied, wondering who in San Diego would want to converse with me at that particular time. I had no business with anyone there.

"Deposit seventy-five cents, please, for five minutes!" I heard the operator instruct the caller. There came to my ears at once the ringing sound of coins dropping into the distant phone.

"Hello. . . . Mr. Roberts?" the caller's voice was high-pitched and piping.

"Roberts speaking," I repeated.

"Will you be in your office for the next sixty minutes, sir?" he asked.

"Yes . . . of course!" I replied. "My office hours are from. . . ."

"That's fine!" he interrupted. "I'd like to have an interview with you in one hour. Perhaps I can get there sooner! Will you wait? It is very important to both of us!"

I glanced casually at my watch.

"But you can hardly be here in an hour, my dear sir!" I said. "Aren't you in San Diego? That's at least an hour and a half away from here by Western Air Express!"

"Just the same, Mr. Roberts," he said with perfect assurance. "I will be in your office in sixty minutes if you will receive me. My name's Cantrell—David Cantrell. Will you wait?"

"Yes, yes! Of course I'll wait!" I said with an ingrowing feeling of suspicion. What was this anyway? Some sort of a hoax? Some new way to get me interested in the far-fetched scheme of a cracked inventor. "How do you plan to get here in an hour? It's a hundred and twenty miles to my place as the crow flies!"

ED EARL REPP

UNSUSPECTED riches lie all around us. Beneath the surface of the earth are minerals of all kinds that have only in part been utilized; and man is constantly digging into the earth to obtain and make use of some of Nature's great gifts. But few of us even suspect that in the commonplace and despised thing called water there exists one of the most precious of all metals—namely gold. We have it on the authority of Dr. Georges Claude, a noted French scientist, that in the Gulf Stream there passes a given point every day gold to the value of $800,000,000! Naturally, this gold is not found as nuggets but in finely-divided particles that are held in suspension by the water. Of course no one can see the gold with the naked eye. And the catch, as Dr. Claude puts it, is that no one has yet been able to find a way of extracting the gold.

But suppose someone could extract this gold. What an amazing source of wealth he would have!

In this story, our popular author uses that theme, and in a breath-taking adventure full of daring exploits he takes us on a gold-hunting expedition into the Gulf Stream.

Waiting

HE laughed oddly as the operator informed him that his time was up.

"I'll explain that when I arrive!" he said just as the connection was cut.

The phone went dead and I sat back in my chair to muse and speculate.

The minutes ticked off rapidly and after the first ten had passed, I gave David Cantrell no further thought. I had had a growing suspicion that an attempt would be made to ensnare me in some brilliant confidence scheme; it had been tried many times before! I was determined to be on my guard.

Before long I went again to my big window as was my custom when business was dull. I watched a funnel of smoke vanish over the shimmering horizon. Ships had a habit of dropping from sight off Santa Monica. I enjoyed watching them as they steamed up-coast from San Pedro, in ballast or cargo-laden, and dipped down the Pacific's watery slope toward the South Seas or the Orient.

A row of condemned clippers, shorn of their masts and everything but their vivid pasts, stood in the bay, playing their new parts in the world of commerce. Yet they rolled on the swells proudly, their figureheads nosing into the brine frequently; proud despite the fact that hundreds of pleasure bent land-lubbers lolled along their bulwarks and fished for the slimy mackerel that flashed through the water in their myriad schools.

Proud crafts all, these gray hulks which had sailed the seven seas in the olden days, to build up a world-wide trade for Uncle Samuel, had been replaced by modern greyhounds of the deep, and were now relegated to the Pacific fleet of fishing barges. It was a terrible curse to lay upon these ships that helped to make history in the tumultuous days of the nineteenth century. Better had they been towed out to the open sea and sent to the bottom than be subjected to such humility. They should have been buried at sea like the brave men who had trod their pine-pitched decks!

I liked to look at these old hulks, remnants of a past day; to think about the romances that their decks had seen, the hardships, rigors, sorrows and joys that their crews had undergone upon them. For long minutes I studied the sad scene. There was *The Empress of India*, lying three miles off. On one occasion I had boarded her, not to fish, but with a special permit to pore over her ancient logs, bound and cached away in the forepeak. What I read there

would have fired the imaginations of a hundred writers for a score of years to come!

I DON'T know how much time had passed when I saw what appeared to be a phosphorescent streak in the water a mile to the south of *The Empress of India*. It is surprising how far one can see on a clear day in Southern California. The streak seemed like the wake of some giant fish—a whale, swimming at a rapid clip just under the surface. And there was what appeared at the distance to be a black fin protruding above the streak, throwing aside brine that shone like opalescent fire in the brilliant sunlight.

But no, it could not be a fish. The wake was too long. Fish, even deep-water mammals, did not throw up a wake like this. It was too artificial; too much like the streak of a speeding torpedo of the deep. It must be a submarine! My thoughts raced along with the mysterious object as I conjectured about the thing. I decided that it could not be a submarine. A man-made fish could not travel that fast! This thing was speeding toward shore like an arrow!

Mechanically I pulled my telescope into line with the thing. Many a pleasant hour I have enjoyed with the 22 power telescope, made for me at great expense by one of my clients. I set the tripod, trained the glass upon the approaching mystery, and peered at it intently.

It was a submarine! A fin-shaped periscope protruded from the water like a slender, bent finger. A mile-long wake trailed behind it; the water foamed and glistened. I had but a moment to speculate upon the thing when suddenly it dipped under the surface in the center of a swirl, and vanished. A sudden commotion in the water at what I undertook to be the boat's tail, caused me to wonder what manner of screws it had to make the water boil when reversed. Then I thought again of David Cantrell's mysterious phone call. I glanced at my watch. Fifty-seven minutes had elapsed since the man had called! Could it be that David Cantrell was arriving in a submarine that made two miles a minute? I was soon to find out.

The submarine appeared to have vanished entirely. Even the water-swirls which I could view with ease through my telescope, had gone. Only natural eddies, little rip currents and unbroken rollers marred the surface where the thing had gone down. Perhaps my telescope had not been adjusted right; perhaps the thing was a fish after all!

In choosing the building in which to install my patent brokerage office some years before, I selected one that stood almost on the brink of the Santa Monica palisades. From it I could see miles of beach, dotted here and there with varied-hued sun-shades of languid bathers. But directly in front of me, in the neighborhood where the submarine had vanished, the beach was deserted. Not even a casual stroller was on hand at this hour. But presently I had a sight of something that caused me to stare, incredulously....

A man walked suddenly out of the ocean, removed what appeared to be a diving suit, rolled it up in his arms, and started toward the beach boulevard! He went unerringly up the rustic-railed path leading from the beach to the highway atop the palisades. Scarcely able to believe my eyes, I watched him. Without pausing to look right or left, he marched across the highway. Unable to perceive him further, I lost sight of him until some minutes later a slightly bent-over gentleman walked into my office and announced himself as David Cantrell! He was the very same man who had stepped out of the Pacific unmindful of the gentle rollers!

Laying a roll of rubberized apparel on the floor just inside my office, he confronted me. His manner was suggestive of complete confidence and assurance; an assurance that I later learned was quite justified.

A Strange Visitor

"ARE you Mr. Roberts?" he inquired, smiling. His teeth were white and even; suggesting a youth and preservation that conflicted with his evidently ravaged body.

I nodded, staring at him with amazement. He seemed to be part of some fantastic nightmare.

"I see I'm just three minutes late, Mr. Roberts," he said, glancing at a railroad watch almost as large as a turnip. He shoved it casually into his pocket again, took out a pair of horn-rimmed glasses from his vest and proceeded to clean them vigorously. He continued: "I was detained a few minutes at San Diego before I could get away. I'm sorry to have been late."

"Late?" I gasped. "Why man, you've made remarkable time if you came up from San Diego. Was it you who walked out of the ocean?"

He smiled and glanced toward my window.

"You saw me, then?" he asked. "You watched me come ashore?"

"I watched something that is damned hard for me to believe, Cantrell!" I said, suddenly suspicious again. "Looked like Captain Nemo suddenly come to life from Jules Verne's fantastic 'Nautilus'! Perhaps I'm suffering hallucinations today."

David Cantrell laughed in such a way that I could not help but like him. Despite his emaciated features, slight stoop, and wizened look, which at the first caused me to sympathize with him, he seemed to be in spirit a young man. I judged him to have a spirit that resisted tenaciously the mental depression that inevitably comes with physical suffering.

"No, Mr. Roberts," Cantrell answered my question, meanwhile seating himself in a chair beside my desk. "You're not suffering hallucinations. In fact, you saw me walk out of the sea, like a ghost, I suppose. I can see that it astounded you as much as the speed with which I covered the distance between San Diego and Los Angeles. But that speed is nothing, Mr. Roberts, to what I can do with my undersea conveyance—the *Barracuda!*"

"*Barracuda!*" I said, dumbly. "The fastest swimmer in the sea!"

"Exactly!" Cantrell said without arrogance. "That's precisely why I named my craft the *Barracuda!*"

I peered at him quizzically. But apparently he understood the questions that lay behind my eyes, for his face flushed.

"You've got me all wrong, Mr. Roberts," he said hastily. The man must have been a clairvoyant. "I'm not going to try to interest you in rum-running! Not at all! My business is strictly above-board, honest, legitimate! Please do not misunderstand me."

I scrutinized him sheepishly, uncomfortable. It is not nice to be caught questioning a man's honesty and integrity if that man is above reproach. But I could not help wondering what brought Cantrell to my office when, with a craft like the *Barracuda* under his command, he could have almost anything he desired elsewhere.

"Nor have I come here to interest you in a scheme to obtain confidence money," he continued. "I'm not a crook, a cracked inventor, a confidence man! I am a soldier of fortune with a pretty good knowledge of science and a general scheme of present and future mechanics. Though money, considerable money will be required for the project I have in mind, it is not, primarily, the cause for my visit."

HE paused to study me for an instant.

"Well—?" I said, questioningly.

"I have had considerable contact with various inventors

whom you have represented in the past, Mr. Roberts," Cantrell cut in. "Hamilton, Craig, Lottsmith and others. They have all informed me that you are an honest man, one who is on the level; a man who plays the game square for his clients. Mr. Roberts, there may be other patent lawyers who are as honest as you, but I never heard of them. That is why I came here today!"

At a loss to understand what kind of psychology this man was trying to use on me, I merely nodded my head blankly.

"Well—er—thanks, Cantrell," I said. "It has been my life-long policy to do an honest business. I've made a fortune being honest; why be otherwise?"

"Then I need not vouch for my own integrity when I come out in the open to you and lay my cards on the table," he replied. "Were I associated with any questionable racket, I would not have come here."

"I guess you're about right, Cantrell," I admitted. "But what do you want me to do—patent your craft?"

"No!" he said decisively. "I do not want a patent. To register the *Barracuda* in the patent office may place certain plans in the hands of unscrupulous persons. I wish to avoid that by keeping my craft a secret until such times that I see fit to obtain guaranteed protection."

"But you heard that I was honest—" I put in, again suspicious. Perhaps this fellow had stolen plans for the craft from some other inventor and did not want to disclose his identity through the patent office.

"I did not mean to question you, Mr. Roberts," he said quickly. "I meant that there are persons in the patent offices whom I could not trust to keep the invention of the craft secret. That's all."

"You are probably right again, Cantrell!" I admitted. "There have been numerous leakages of secrets lately throught the patent office."

"Well then, taking that for granted," he continued, "let me get to the real purpose of my visit."

He squinted at me shrewdly for a moment and then leaned forward.

"How would you like to earn a thousand percent on an investment of one hundred thousand dollars, Mr. Roberts?" he asked evenly. I could not suppress an incredulous grin. "I'm serious, sir!" he said, reddening.

"Cantrell," I snapped caustically, "are you trying to pull some kind of a game on me?"

"Assuming that my present proposition was perfectly legitimate and safe, Roberts," he said, ignoring my thrust, "would you be interested?"

An Unusual Offer

"WELL naturally." I nodded. "I'd want to make as much out of any investment as possible. But a thousand percent . . ."

"A thousand percent is the lowest figure I felt inclined to offer you, Roberts," he said. "A hundred thousand will double itself in a week. Consider the earnings in ten weeks . . . twenty weeks or for an unlimited period!"

I gasped at the mounting figures that my brain pictured.

"But how the devil can a man make a thousand percent or even one percent on an investment at this time when business is so dull?"

"You don't have to worry about business conditions in my project," Cantrell said, smiling at my amazement. "In fact there would be but two shares—yours and mine! Here—read this. It'll give you a hint at what I'm driving at!"

He reached into a pocket and drew forth an ancient newspaper clipping and passed it over to me. I read it, vaguely understanding what this man was intending to do. I tensed and grew more interested with each passing word. Eventually I finished and handed it back.

"Keep it, Roberts!" he said. "I know it by heart now! What do you think?"

"I think I've got you now, Cantrell," I said, shaking. "You plan to sift the Gulf Stream off the coast of Florida and remove some of the $800,000,000 worth of gold that passes a given point every hour, eh?"

"Exactly!"

"But this clipping—this scientist, M. Georges Claude—how does he know that the Gulf Stream contains gold?" I inquired incredulously.

"Dr. Claude has made certain experiments with the Gulf Stream, Roberts," Cantrell replied, "and estimated that this moving stream is permeated with the metal as you see. He found that at least 2 cents worth of gold is contained in every cubic meter of water in the stream!"

"And the clipping says that the catch is: 'No method has been found to extract this wealth,' Cantrell," I argued, trying not to weaken to the strange fascination of the idea that this man had evolved.

"*My dear Mr. Roberts*," he said without hesitation, "*I have found a way to extract that wealth!*"

"You what?"

David Cantrell repeated his last statement and settled back with a comfortable smile.

"I need a hundred thousand dollars as working capital," he said eventually as I gazed abstractedly out of the window, "to build the necessary apparatus for attachment to my craft. And please remember that I took pains to verify Dr. Claude's theory before getting too interested in it. I also need, Roberts, a man of your caliber to help me with the actual work—a man who can fight if required; one who will stick by my side as an inseparable mate!"

"Fight?" I asked. "What do you mean?"

He stared at me oddly.

"There's a lot of men in this world, Roberts," he said, "who would like to get their hands in a fortune in gold without working for it!"

I knew at once what he meant. The seas were crowded with rum-runners, pirates and crooks of every denomination who would pop up instantly. But of course, Cantrell had kept his plans secret and nothing was likely to interfere. The underworld rabble of the high-seas could not know his intentions. Even if it did, what could it do?

But why had I, of all men, been asked to invest in the deal? There were hundreds, thousands of men whose wealth made mine look like the winter storage of a field mouse! I later learned that Cantrell had selected me for my trustworthiness alone. I have always been proud of my integrity and honesty!

[illegible]

Cantrell Comes Back

DURING the next week David Cantrell had vanished from sight. Where he was I had no knowledge. I did know, however, that when he departed from my office, I went with him direct to my bank. There we arranged the necessary papers, had them notaried and he went away with $100,000.00 in cash. He was to communicate with me three days hence. Meantime I was to prepare for a temporary closing of my patent office and make arrangements to accompany him later in the *Barracuda*. He was to communicate with me on Thursday.

When the day came and went agonisingly slowly, I began to have a suspicion that I had become victimised. Cantrell did not call, nor did he appear; he seemed to have been swallowed up. Friday came and no call. Saturday, Sunday and then Monday passed; each passing hour adding fuel to

the free of my self-reproach.

Monday morning early I went to my office to wait. Several times I had gripped my telephone tensely with the intentions of calling the Santa Monica Detective Bureau, but each time I hesitated. Then suddenly out of a clear sky Cantrell appeared. Relieved of my tension I looked up as he entered my office. He was smiling broadly and new lines appeared to have creased his temples. He seemed to stoop over a trifle more, but his spirits were high, his eyes snapping.

"Cantrell!" I exclaimed with a great relief.

"Sorry to have caused you any anxiety, Roberts!" he said, laying a bundle of rubberized apparel in front of me. "I had a little set-to with a government patrol boat off Catalina. I had to lay low for a day until it gave up the chase. I have no clearance papers for the *Barracuda*, you know, and had no desire to explain. If I had let them catch me, our secret would have gotten out. We don't want anyone to know about my craft or our intentions. But everything is ready now, Roberts. We'll run over to my secret berth on Guadalupe, pick up my brother Tom and head for Florida via Cape Horn."

"Around Cape Horn?" I asked. "Why go the long way around? Why not go through the canal?"

"You can't go through the canal without being seen, Roberts!" he replied, grinning. "So we've got to round the Horn!"

"Oh, I see, Cantrell," I nodded, "but that'll take us weeks longer in getting to our—er—Gulf Stream off Florida."

"Seven days longer, Roberts," said Cantrell, assuringly. "That's all. But go ahead and try on your diving outfit!"

"You mean for me to put this equipment on?"

"Yes, try it. I had to guess at your measurements. I forgot to get them. I think the outfit will be large enough. Just slip into it like ordinary overalls and snap the lacings tight at the throat. The helmet fits down over the shoulders and straps under the arms; it has a small motor on the rigid top running from little batteries that will supply the necessary oxygen."

Quickly I donned the outfit, Cantrell giving me a hand. The suit was an abrupt departure from the diving suits of which I had some knowledge. There was nothing cumbersome about Cantrell's suit. It was made simply of rubber, black and slippery. He slipped a semi-rigid helmet over my head, lashed it down under the arms and touched a button at the ear and I heard the hum of a high-speed motor. He placed my fingers on the button to enlighten me. It lay within the rubber, completely protected by insulation. I found no difficulty in pressing it on or off. And the air within the helmet was as sweet and pure as the air atop Mount Wilson. He placed my hand on a small chain-cord, advising me to pull it when the air became stagnant. I did this after a bit and the oxygen changed to cool air. The foul air vanished through a small vent tube protruding an inch from the crown of the helmet.

I COULD not hear many of Cantrell's words as he explained the outfit. But I felt something pulling at my feet. I lifted a foot under pressure and he must have strapped a heavy weight to it. He repeated the process on the other; then ordered me to walk. I did so with difficulty; the weights were very cumbersome to my inexperienced legs. But I felt that they would hold me down in the water when we should march into the gentle rollers off the Santa Monica beach! I had no fear of losing my equilibrium at anytime during the march to the *Barracuda* which must have lain anchored some yards off shore.

Shortly thereafter, David Cantrell and myself stood on the beach and helped each other in donning our diving suits. Cantrell needed little help, I admit. He had his outfit on in a few seconds and turned to aid me. I was having difficulty with the helmet. Through a small glass plate before my eyes, I watched a group of bathers gathering around, all curious. They seemed to think that this was going to be an interesting joke or demonstration of some sort. Wouldn't they be surprised and alarmed if we failed to return to the beach after a lapse of time? I smiled at a thought of them running to the life-guards to inform them that two men had walked into the sea in funny looking diving suits, and failed to return!

Cantrell presently took me by the arm and together we marched into the Pacific. I was a trifle alarmed, but he undoubtedly was perfectly at ease. I felt a shudder run through me when the first roller smashed against my chest and threatened to hurl me on my back. But I fought gamely to stand erect. It wasn't so hard, I thought, after my first little scare had vanished. Then gradually the water rose up to my observation plate. I had a glimpse of a boiling comber rolling toward me. I could hear its low rumble as it sped shoreward. Cantrell squeezed my hand presently and pulled me down, squatting. My head went under and I felt a thousand small eddies, ripe and currents tug at my legs and arms as the roller thundered overhead.

Not since the World War of 1918 had I experienced such a thrill. As a Lieutenant on board a destroyer, I had enjoyed many a thrilling adventure. But this was something so vastly different! Here I was, under water, where no taut life-lines could be grabbed quickly, where there was nothing but the weights on my feet to prevent me from being thrown helter-skelter like a bit of flotsam in the swift, powerful currents.

I had some understanding of submarines, gained during my war service. In fact, I had been first assigned to the submarine division where I soon learned the general principles of the sub-sea craft. But, of course, that was almost thirty years ago.

You can imagine the surprise I received when I first beheld Cantrell's *Barracuda*. Its principles and construction departed so abruptly from the submarines which I remembered as "modern," that I was astounded. The *Barracuda* was not so large, probably only half as big as the S 41 and others of her class; but its shape, structure and surface made it appear, not like some mechanical device of mankind, but like a deep-sea fish itself!

The craft loomed up before us in the phosphorescent-green water like a giant fish—like a barracuda, lying on the sandy bottom, resting, or waiting for the passing of some unsuspecting victim. A school of small surf-perch scudded away from it as we forced ourselves toward it, beat over against an incoming tide. A glistening flash in the water toward the peculiar-shaped bow of the *Barracuda* caused me to stare at it. A shovel-head shark, hiding in the shadows, darted forth and made for the surf-perch like a streak of fire. They scattered as the larger fish plunged into the school, rolled over sideways to bring its jagged teeth into play and swallowed one of their number. In the instant that followed this drama, the fish had vanished. The *Barracuda* lay in front of us, deserted, like a weird fish that had sled-like runners on its bottom to protect the belly!

Into the Sea

CANTRELL'S craft did not do injustice to its namesake, the barracuda. There was a very close similarity in the long, slender, vicious lines. But the nose of the *Barracuda* could have been taken from some horrifying hammer-head shark, except that it bore two bow-plates, horizontal and perpendicular, like the business end of a deep-gouged per-

cussion drill. To a layman, the bow of the craft would have looked like the tail of a dirigible. But I had already beheld the tail of this strange sub-sea racer.

The propellers, three of them, were entirely enclosed by protecting appointments with oval holes around them to allow the water to come in an unbroken mass upon the tri-bladed screws. They stood well up from the bottom, however, held in safety by the wide, flat runners on the craft's belly. Rigid fins ran the length of the submarine and her sides and belly were streamlined with the ridge-like grooves so typical of certain members of the whale family. A peculiar, fan-like periscope rose like the dorsal fin of a shark, from the top structure. Small round holes were visible on the sides of the periscope and the front had an oval aperture. I had an impression, as I studied it for a moment, that this periscope could cover a wide, circular area surrounding the craft without having to swing the vision-instrument, as was necessary with other undersea craft. This was true as I learned later. I was destined to learn many strange things about it, as the craft sped toward our goal.

Cantrell presently let go of my hand and marched up a small steel ladder toward what I though was a door in the side of the *Barracuda*. I stood on the floor of the ocean, swaying gently with the currents. He swung at once on a lever and the door opened. He motioned me upward to it as he entered. A small room within was filled with water and I wondered how he planned to enter the craft without flooding it.

Quickly he shut the door again and locked it tightly. His hands found a series of valve wheels that lay on one side, scarcely visible in a pale light that glowed from a small bulb on the ceiling. Then as he turned them I heard the hiss of compressed air. The vent-cocks had been opened and compression was forcing the water from the compartment preparatory to our entering the craft. Rapidly the water lowered and presently my shoulders were high above it. Around my knees it began to swirl in little whirlpools. The cabin was filling rapidly with air and the pressure was powerful around me. I seemed to have suddenly been placed in a vise that fitted my frame like a glove. Then the water vanished entirely from the compartment and Cantrell, without a word, closed the cocks again. We entered the interior of the sub through another "head" and I found myself in a dry, well-appointed control room.

"Well, here we are, Roberts!" Cantrell said, removing his helmet. "What do you think of the *Barracuda*?"

"From indications she looks great," I replied, "but who the devil built this craft for you?"

David Cantrell smiled proudly, as he surveyed the room.

"I built her!" he said evenly. "My plans, my brains and all the money I ever had in the world, plus four years constant labor. Of course, my brother Tom helped!"

"You built this craft—yourself?" I asked, incredulous. "Tom—he is your partner as well?"

"Of course not, simply ourselves. We naturally had to have a crew of men to help us," said Cantrell. He rolled his diving suit and laid it under a covered bench. "Tom is my partner. He'll share whatever I get from our venture. Half is yours. Mine will be divided with Tom. He's a mighty good mechanic; understands submarines, but he has no inventive tendencies. Both Tom and I spent four years in a submarine as officers in the Navy. You'll like Tom, however."

"Genius—inventive genius!" I gasped. "Why, man, you are a super-genius to build a craft like this. You must have worked like dogs—both of you!"

Cantrell shrugged his shoulders and nodded.

"When I started to build this thing," he said. "I was a big husky fellow like yourself. The labor was killing yet we never let up for a day. That's why I look like a good prospect for an undertaker now!"

"That's what I thought, Cantrell," I said. "You don't appear ill on second glance. Excessive work will break a man's resistance, though. When do we start?"

"At once!" he replied, motioning me to follow him into the engine compartment. "We'll streak a course for our berth on Guadalupe, off Lower California, get Tommy and head South! Know anything about subs?"

"NOT much," I said. "But you don't need me in running this ship—at least after operating her yourself from San Diego to Los Angeles in an hour!"

Cantrell chuckled.

"No, Roberts," he said amiably. "I can do it all myself. But it won't hurt for you to get the hang of the thing. Might need it. I've learned to know every bolt and rivet in her since her keel was laid four years and six months ago. I've about come to great intimacy with her, so to speak."

The engine room of the *Barracuda* was cramped for space, like all submarines. Dials, control levers, panels and instruments galore consumed every available inch, except in a narrow alleyway in which the engine tenders could work. Even the alley would not accommodate more than two or three men at most. The craft was exceptionally narrow throughout but well built, super-braced and seaworthy in every respect.

Three engines lay directly in front of me, one on either side of the alley, and one above it under which a man could barely stand without bending over. They seemed like oblong boxes of steel. Scarcely a working part was visible. Everything appeared to be encased in water-tight housings. I was marveling at this departure from the usual, when Cantrell pushed down on a small electric switch. Instantly the port engine hummed like a dynamo; then the other two droned softly without an indication of vibration.

"They run by the cheapest of all energy," Cantrell said. "I use sea water."

"Sea water?" I asked incredulously.

"Yes," he replied, grinning. "I decompose the water by a special process which gives me energy enough to drive all my engines. Costs practically nothing."

"Well I'll be danged!" I expostulated. "Like an ordinary sub but so vastly different! Modern subs run from storage batteries, the curse of all undersea men! Why not turn this principle over to the government, Cantrell? You'd reap a fortune!"

"I'm not ready yet, Roberts," was the casual reply. "But when the time comes for that I'd like to have you handle the deal for me. In the meantime, I want to take a crack at the wealth in the Gulf Stream. If we have the success that I think we shall, I might make the government a present of the *Barracuda*! Let's get under way!"

CHAPTER III

The Journey Starts

WE returned to the control room again and Cantrell took up a position at the controls. They were not unlike the controlling units of an ordinary submarine, yet they were arranged differently in many respects. There were submerging controls, lifts and others, but what held my interest mostly was the way in which Cantrell placed the *Barracuda* in motion. Had he been driving some huge gear-shifting surface machine, his actions could have been little different in getting the thing underway.

Three different levers stood within his reach. He grasped the central lever and slowly moved it backward as though

shifting the gears of an automobile. I heard the dull groan of meshing gears and felt the craft slide along the bottom.

"These things can be made to shift automatically," he said over his shoulder, "but I like to ease 'em in myself. Gives me something to do. I like to keep moving. Watch the other levers!"

The *Barracuda* had left the bottom now and was moving forward gently through the water. Cantrell reached forward to a panel board and pressed two buttons simultaneously. I felt the craft lurch ahead with a sudden recoil as the two levers moved backward into what I determined to be, figuratively, low gear. I was astounded when I looked at what appeared to be a small glass on the panel before him. It was colored with a fathomless blue and I had a glimpse of frightened fish scudding through it.

Had I been peering through the observation panels of the glass bottomed boat at Catalina Island, I could not have had a better view of the submarine world than I was having through the periscope-glass in the *Barracuda!* The periscope tube came down over the panel with its interior aperture over this strange screen, projecting the sub's circular vicinity upo nit with kaleidoscopic vividness. Another ingenious achievement of my friend David Cantrell! But I was destined to learn more about that periscope before our venture was ended.

Rapidly the *Barracuda* picked up speed and sped down the coast, about five miles off shore. Frequently I heard the throb of powerful screws even above the high-pitched hum of our own motors. Cantrell had slipped the submarine into high gear and the crossed, knife-edged prow bit through the water with a clean graceful sweep. I could hear the water tearing madly along the *Barracuda's* trim, streamlined hull.

Cantrell felt that it would be best to remain well beneath the surface for awhile; accordingly I saw or heard little of what went on at the water's surface. There was not a throb, nor a vibration anywhere in the craft. It seemed to slide through the submarine world like a slimy barracuda after an elusive mackerel.

Tensely I watched the periscope screen, trusting to luck and breathing silent prayers that we should not ram some hidden kelp fields, submerged derelicts or even high-rising rocks. Cantrell remained continually at his controls, seldom removing his eyes from the screen. There was little for me to do but watch with him. There was a peculiar glint in his eyes, the snap of adventure. I knew it! I'd seen that glint before, many times, when my old 313 hove into U-boat infested seas during the war. I suspected that my eyes too, had some sort of a glitter. I was tensed to the breaking point. Like old times—a roaring sea, a bouncing destroyer, a shroud of black smoke and the scream of overworked screws!

HOW I reveled in it for the following minutes. I forgot all fear, even all knowledge of the reward which lay before us. I was simply swept along on the arms of a breathless, unknown adventure through strange places that no man had seen. Then suddenly there appeared a great mass of twisted kelp—a tremendous field of submerged seaweed! Before I had time to yell, we were into it. I heard the thick, sinuous stuff scrape along our hull.

"Cantrell!" I yelled. "We'll get tangled up in that stuff! The kelp will entwine around our screws! We'll never get out!"

He turned his head around and faced me quizzically, smiling grimly. The *Barracuda* shuddered from stem to stern. Her velocity was checked as her sharp snout bit deeply enough into the twisted mass to spell destruction for any ordinary undersea boat. But David Cantrell's submarine was no ordinary boat!

"Keep your shirt on, Roberts!" he snapped. "This old hulk'll take that kelp bed like a duck to water! The screws are protected by overhanging braces; her nose'll cut through that stuff like a lawn-mower on your best grass garden! Hold tight!"

Instantly I felt the *Barracuda* lifting like an airplane encountering a slight up-draft. Then it continued on through the kelp, its speed checked only to a small degree. Cantrell reached upward and swung on a periscope lever. The protruding instrument over the hull was turned around so that the kelp would slide off its curved edge rather than become entangled. In the screen, I glimpsed the scenes about us. The kelp bed was in a turmoil and boiled and writhed like a million, yes millions, of reptiles twisted into a solid mass. Great tentacle-like trunks, long streamers of amber cord, weird growths with flowing leaves and balls on them, and vivid red string coral all passed behind, clipped neatly.

As though the *Barracuda* had suddenly encounted a choppy sea on the surface, it bounced up and down as it shot through the kelp. I clung tightly to a small railing behind Cantrell. He did not slacken the craft's velocity. Instead, he allowed her to lurch continually forward into the growing, thickening masses. The periscopic screen was pitch dark now. Not an object could be seen. It was as though we had suddenly become immersed in a Stygian night.

On hurtled the *Barracuda*, her triple, tri-bladed screws whining an ominous note. The three motors purred softly but did not for an instant seem to falter. The craft's sharp nose was cutting a clean path through the mass of kelp, a path that closed up immediately after our passing, to twist again into a tenacious field of seaweed through which few things could pass. To me the *Barracuda's* feat was something miraculous. I knew it to be true that all submarines gave such kelp fields wide berths indeed. No government submarine would ever attempt to negotiate such a dangerous, death-dealing obstruction! Surely Cantrell must have been mad to do it. That was my first thought; the only natural one to a man who did not understand the capabilities of this craft. But as the minutes flew I began to understand that the *Barracuda* was something akin to a dream of a most imaginative writer of science fiction.

An Interesting Experience

AS the *Barracuda* continued to bounce over the slimy kelp, sliding under it and cutting through it, I wondered if we should ever get out in open water again. What if a rock should poke its blunt, menacing form in front of us? We would be drowned like rats in a trap! What if the hulk of some half submerged derelict, lying in the grip of the kelp bed, should pop up? I shuddered and glanced at the screen. It was growing light! Gray, black shapes began to appear. Open sea lay ahead! Then as suddenly as the field had come upon us, it vanished. The screen became a blue-green again. It was like having a total darkness dispelled and coming suddenly into the sun's rays.

Down through the Catalina channel the *Barracuda* plunged, twenty fathoms under the surface. Overhead the water churned as some huge dreadnaught rolled toward the San Pedro breakwater and anchorage. We passed a slow moving submarine coming in from practice. As we passed it appeared to stand still, like a water-soaked log. I wondered if any one aboard her had seen the *Barracuda*. No, that would be impossible unless the sub's 'scope was submerged. In her position, she had her "eyes" on the sur-

face, watching closely the ships and craft in motion around her, uninterested in what lay beneath her belly. She knew her position; knew that her depth was satisfactory.

It did not take the *Barracuda* long to reach Guadalupe island, the home of the Pacific sea-elephant and the birthplace of the submarine. Deserted except for a few Mexican fishermen and a herd of some four hundred of the ponderous beasts that swam sluggishly through the sea or lay sunning themselves on the rock-strewn beach, Guadalupe appeared from the distance like a great projecting island of rock. We cruised along at moderate speed on the surface as we approached it. Not a vessel was in sight; not a breath of wind stirred the serene, glassy surface of the channel. I glimpsed a turmoil in the water ahead and mentioned it to Cantrell. He grinned.

"Sea-elephants!" he said, simply. "Big as houses . . . some of them! Mighty queer fellows, too, and tame! I watched a crew of scientists take a few specimens one day. They had a lot of fun trapping those monsters. Interesting experiment. One fellow got too close and an elephant whacked him with a flipper. Poor fellow! They picked him up yards away with a broken leg, a dislocated collar bone and possible internal injuries. I avoid sea-elephants as I would a school of killer whales!"

"They'd wreck the *Barracuda*, Cantrell?"

"I should hope to tell you!" he nodded. "I've been attacked by a school of killers, too. Once a giant swordfish attempted to fight it out with me, but the *Barracuda* won. The killer smacked against the hull like a cyclone but there wasn't much left of him when I passed! Made a dent in the plates, that was all. But a killer whale! Wow! One of them followed me for twenty miles, hell bent. He came up gradually, so I slowed down to see what he'd do. He stuck his snout into one of the screws and had it clipped off. He turned over on his belly and floated to the top. Never saw him again!"

"Then, by jasper, Cantrell," I said, "that accounts for the mysterious whale that was washed ashore at Long Beach with his snout cut off! No vessel ever reported running afoul the critter. I saw him. He was de-snouted as clean as if he had come under a gigantic knife!"

Cantrell chuckled.

"Same fellow!" he said. "I spent two days in a diving suit replacing a screw-blade after that incident and as many hours picking out teeth and bone from the bearings. But when the school swung onto my tail between here and San Clemente, I thought my goose was cooked. The devils went at me from all sides until finally I got sore and took a chance on ramming a few. The water looked like red ink but the impacts opened a seam up forward and I had to quit. Yet they chased me all the way to Guadalupe!"

I SUSPECTED that Cantrell would put in at Guadalupe as soon as we came near the island. To my surprise he continued on around to the other side, riding the waves just below the surface. Only the 'scope protruded.

"Don't want to be seen," he volunteered, "not even by one of the Guadalupe greasers. They're ignorant enough, but not too ignorant to wonder why a strange sub should be wandering around. On the other hand, there's a gang of rum-runners up in the hills who have a couple of three-pounders hidden behind some emplacements. They might suspect that we are federal agents and take a whack at us! We'll put into our berth in a few minutes. We'll have to dive to make it."

"Dive—to put into a berth?" I asked, questioningly. "How come?"

"Tom and I looked all over this section for a good place to build our sub," he said. "We finally found an underwater cave that goes from a small lagoon into a wide underground lake. We explored it in diving suits. When we got in to the lake, we found that it has a beach just like any other beach, with plenty of room to lay a keel on the slip. It was then a question of transporting our crew and supplies into the cave by means of another submarine that we bought. We decided to build the *Barracuda* there. The cave would have made a fine place for a band of pirates. Perhaps it was used for that in the old days, but we never found anything to indicate it. Waves and currents had formed the undersea cave and erosion probably shaped up a huge chamber within. Anyhow, we found a number of chlorine blowouts in the roof that provided us with air."

"Your feat is astonishing," I said. "Anybody ever get wind of you being here?"

"One fellow, a greaser," he replied, "who was out hunting wild goats. He watched us for a few minutes while we came up through the holes for a little sunlight one day. But I put the fear of God in him, and a couple of slugs to boot. I've never seen him since!"

"You—you killed him?"

Cantrell stared at me curiously and then grinned.

"Do I look like a killer, Roberts?" he asked, squinting. "No, I told him in Spanish that if he ever came around again or breathed a word of what he saw to anyone I'd slit his gullet. He laughed at me and to back up my talk, I let him have a slug in each calf—22 calibre! Didn't hurt him much but scared him plenty!"

I breathed easier, for I have never been in sympathy with a ruthless killer.

Presently the *Barracuda* ploughed around a jetty and slowly eased toward shore. Tense at the controls, Cantrell paid little attention to me now. He was gauging his distance for a dive. Suddenly I heard a slight inrush of water in the submerging tanks and I watched the scenes change in the periscope screen. Slowly the sub went down with only the upper screw pushing it through the water. I saw a huge black hole loom up in front like a pit of hell. Into it slowly went the *Barracuda* and the screen became dark again for a few long seconds; then brightened once more. I felt the hull rub against a padding on the side of the cave as the sub slid through. Cantrell turned on the pressure valves and blew the water from the tanks. The *Barracuda* rose to the surface of a large inland lake which glistened like a huge diamond under the glare of the sunlight that penetrated through the chlorine blowouts. The craft swung slowly inshore and I felt the runners scraping on sand as they came into contact with the bottom. Cantrell shut off the motors, motioned me to follow him, and together we went out on the surface through a hatch in a small tower. A man was standing on the shore, watching us, a rifle in his hands. We walked along the top of the craft and leaped ashore.

Tom Cantrell

"MEET my brother, Tom Cantrell," Dave introduced. "Tom, this is Mr. Roberts, our partner, who has financed our venture."

Tom threw his rifle into the crook of his left arm and stretched out his hand.

"Glad to meet you, Roberts!" he said cheerfully. "Dave told me a lot about you—how trustworthy you were and all that. How'd you like your voyage from the mainland?"

"Great!" I said, gripping his hand. "Couldn't be beat. I've got to congratulate you too, on such a wonderful craft!"

Tom Cantrell was a huge, strapping fellow with a clean-shaven face, flashing gray eyes and a winning smile. Around his eyes, however, were the tell-tale marks of labor, anxiety and continual tension. He was dressed in dungarees

and wore an ensign's cap on his head. His hands were calloused, but his nails clean, teeth white; he was handsome, and while there was a close similarity of his features toward his brother's, they seemed as unlike as a pebble and a moonstone. They could not have passed as brothers, David wizened and anemic looking; Tom healthful, robust and powerful. I liked him at once; liked them both, for they were the types of men who would go through hell's fires for a friend any place, at any time. Such were David and Tom Cantrell, and they were to prove their friendship for me on one occasion at least!

"Well Tom, old boy," David Cantrell addressed his brother after we had become acquainted, "the time's here at last for our crack at the old Gulf Stream. Glad, Tommy?"

By the way that David Cantrell addressed his brother I knew at once that he was the older of the two. There seemed something like a fatherly look in David's eyes that caused me to warm even closer to him. Despite his diminutive physique, I figured that anyone doing harm to his brother Tom, would suddenly find himself confronted by an avenging lion. Such was the case as I learned later. David would tolerate nothing that could be considered as harmful toward his brother. And Tom too, looked upon his brother with the same feeling.

"Glad?" said Tom. "Cripes! I'm ticklin' all over, David! When do we get under way?"

"At once, Tommy! Got everything packed and ready?"

"Everything! All your duds are in the brown trunk. The extraction paraphernalia and other stuff is all ready to be assembled when we get in the stream."

"That's fine, Tom," said Cantrell. "We can start loading now. We ought to make Tehuantepec by nightfall; then we'll lay to until morning. It isn't necessary to cruise at night."

"We'll make Tehuantepec by then, all right," Tom nodded, "and get an early start in the morning for the Horn. Let's go. I'll get Roberts a pair of my dungarees; they ought to fit him snugly."

"Yes, he'll have to help us load," David returned. "How about it, Roberts?"

"Naturally!" I replied, taking off my coat. "A little work will take the kinks out of my muscles. I'll consider myself under your orders. Be generous with your work."

A Bloody Encounter

NIGHT had long since fallen, however, when we swung inland in the Gulf of Tehuantepec on the southwest coast of Mexico. The Cantrells took the *Barracuda* into the gulf like a gray ghost and quietly laid her nose and runners in an untroubled lagoon not far from Salina Cruz. She was to lie on the bottom on her protecting runners until morning. David Cantrell donned his diving suit, went out and buried her mud-hooks into the sand as a precautionary measure against unknown rip currents that without warning might slip the sub into the sea during the night and smash her on the rocks. Then all three of us went ashore via an out of the way route and entered Salina Cruz to take in the sights.

Salina Cruz was in a turmoil as usual. A revolution was brewing fast and we were looked upon suspiciously by all who passed us. A huge, pockmarked Mexican with an old-time Sharp's confronted us before long and demanded to know who we were, where we came from and what ship brought us there. David Cantrell addressed him politely, but his fluent Spanish failed to satisfy the man who was evidently a guard. Quickly a crowd gathered. The big Mexican said something that Tom Cantrell did not like, something about sneaking gringoes, and Tom struck him. The fellow sprawled into a dusty street and at once we found ourselves the center of a hurricane. Amid grunts, squeals and curses, we fought ourselves loose from the mob that cried for our blood and retraced our steps back toward the *Barracuda*. One fellow, following us, kneeled and pulled a rifle to his shoulder. I saw Tom turn aside quickly and snap up his automatic. The Mexican pitched forward on his face; the mob behind him halted. Our blood pounding through us like rushing torrents, we raced up the lagoon. A full moon lay above, showering the earth with ghostly rays.

"Jump into your diving suits!" I heard Tom grunt suddenly. "I'll hold that pack of hounds off until you get ready to cover me while I get ready for a dip!"

He turned suddenly and stood his ground, sending several slugs in the direction of the pack. David and I hurriedly donned our diving outfits and presently Cantrell took the automatic from his brother's tense fingers and threatened the cavalcade of blood-thirsty revolters. A desultory gun fire sent bullets whining harmlessly past. Mighty poor shots, these excited Mexicans! Dave could have picked them off one by one had he desired. But he merely held them off until Tom announced himself ready for the return to the *Barracuda*. Together we marched slowly into the lagoon to the tune of singing slugs that they skipped on the water about us. Presently we went under entirely to sleep the night through in peace.

CHAPTER IV

Life Under-Sea

IN a world vastly different from the flaming Salina Cruz, we stretched hammocks across the control room of the *Barracuda*. Never had I slept so soundly; so peacefully. Of late I had been getting rather stale from office confinement. I was beginning to return to my old self of the Navy days and when I was awakened in the morning by Dave Cantrell, I felt like a new man. He had coffee steaming on a small electric plate. The odor of ham and eggs struck my nostrils like perfume of the gods. In an instant I tipped my hammock and leaped to the floor, alive for the first time in years. The only sounds were the occasional banterings between the Cantrells, the sizzling of ham and the hiss of the oxygen tanks.

Breakfast over, David Cantrell donned his diving suit and went out into the lagoon to pull up the mud-hooks, consisting of two long spikes which were stuck into the sand, with a weight to hold them down. There was little chance of the *Barracuda* dragging her anchors because the runners along her belly, to a large extent, insured against it. I discovered that spikes studded the bottoms of the runners. These sunk into the sand and held it. But the Cantrells were careful navigators; they did not believe in taking unnecessary risks, hence their precautions to anchor the subsea craft. Ocean currents, they declared, often played freak pranks and one never could tell just what they might do.

The *Barracuda* slid out of the lagoon of Salina Cruz and headed down the coast at regular cruising depth of twenty fathoms. Within a few minutes after our departure from the revolutionary port, the craft was hitting it up at an amazing clip. Her crossed snout cleaved the water like a streamlined airship. It minimized resistance to a marked degree and clipped the brine like a cleaver, without causing spray or anything else but a phosphorescent wake from her whirling screws.

Frequently David Cantrell shot the submarine to the surface for a look at the world of the sunlight. Occasional steamers foamed in the offing. Far to the south were the unmistakable signs of bad weather. On the surface, our

barometers dropped with alarming rapidity, but the Cantrells grinned at it, assuring me that perfect safety lay below. We lost considerable time in "shooting" the surface because our speed was necessarily checked to guard against throwing us out of the water entirely and burning out the bearings of our motors through lack of resistance. But each time the sub was lifted, I enjoyed the experience immensely, for there were many indescribable sensations in the feeling of shooting up suddenly into the sunlight and just as suddenly plunging into the black depths.

Off Buena Ventura, a northwest seaport of South America, we came very close to running afoul of a lumbering tramp steamer that was putting in for a cargo. Her screws were so feeble that they could scarcely be heard within the sub. Cantrell at the controls, accepted the low, almost inaudible rumble for indications of a storm, blew some of the water from the tanks and lifted the *Barracuda* to the surface. It shot up so rapidly that he had barely time to swing from his course to prevent coming up under the tramp's leaky keel. As it was we came to the surface within forty feet of her churning screws which were half out of the water and churning it like some ancient paddle-wheeler. She was in ballast but had not sufficient weight to hold her screws buried in the brine.

CANTRELL immediately slowed the *Barracuda's* engines and the submarine bounced clear of the water for an instant and pitched drunkenly about in the tramp's wake. Heavy seas were running and I could hear the scream of our racing screws every time our tail shot clear. Whether anyone on the bridge of the tramp saw us, I do not know. Nor did we glimpse anyone on her dirty, smoke-smeared bridges. She seemed deserted.

All day we clipped miles off our voyage under the seas. On the surface a storm raged with a persistency that boded ill for shipping. Terrific squalls tore across the seas and waterspouts occasionally made us terribly fearful at times. We encountered sudden vacuums caused by whirling spouts on the surface, but before long I learned that the Cantrells were not to be caught napping. Then as nightfall approached we "sounded" the surface again. The storms had subsided; the sun lay in a bank of blood-colored clouds, casting a long carmine shadow across our course. We hove to in a secluded spot in the Juan Fernandez Islands and slept the night through in an azure little bay. For a time I amused myself watching huge sharks sniff curiously around us. A giant squid, looking like a great celestial spider, attached itself to our superstructure, shutting off my view. I turned in and swung myself into my hammock. I went to sleep wondering if any pearls lay in the bottom of the azure bay. I had heard the hull of our craft crunching into beds of shell. But bigger game lay in sifting the Gulf Stream off the coast of Florida for some of the wealth that would float by us hour after hour, day after day.

The undersea voyage to Cape Horn was uneventful. The Cantrells did not put the *Barracuda* to any great strain to reach our objective. There was no need of haste. The gold in the Gulf Stream had been flowing since it came into being; would continue to flow long after man had found metals of more importance. So we cruised along at moderate speed, peering into the blue-green murk through the periscopic screen before us. Tom Cantrell remained for the most part at his post in the engine room. David and myself remained in the control cabin. But frequently I visited Tom in hopes of finding some work to keep me busy. Time was hanging heavily on my hands and I had little to do to pass it. They gave me odd jobs occasionally, but unimportant ones. And I soon tired of shining brass work!

We rounded the Cape at high noon, twenty fathoms down. A wind-squall was roaring on the surface. On a surface sounding, I glimpsed a four-masted bark whirling downwind in an angry sea. It looked like some great albatross with its white yards billying, its figurehead biting into boiling brine. We continued up the Atlantic coast and eventually selected a berth in a small bay off shore from Port Desire in Patagonia. Here we went ashore, enjoyed a very lively evening in a wide-open cantina and returned at midnight to the *Barracuda* to sleep it off.

All the next day from an early start, the sub hummed its way northward, Cantrell watching his screen and charts. Frequently we rose to a depth of eight fathoms to pass over hidden banks. Once as we cruised along on the surface to avoid rocks, I felt our port runner scrape a hard substance, and held my breath expecting every moment to see an inrush of water. But the *Barracuda* held her plates. The Cantrells had built a super craft!

Nearing the Gulf Stream

WE debated about going ashore that night. I stood with Dave for remaining aboard for a good night's rest. Tom had a thirst that cried out for something to drench it. But David handed him a glass of water and that settled an argument. We turned in and slept, hidden this time in a little lagoon on the coast of Uruguay. We had not made much speed that day on account of so many hidden banks, rocks and uncharted jetties. And we had encountered lanes of heavy shipping.

On Friday we slid out of the Atlantic and went into the Caribbean Sea after having spent a night in Port of Spain, Venezuela. By mid-afternoon we passed Jamaica, shot the surface, and went down again to eighteen fathoms, to continue as far as the Isle of Pines in the Greater Antilles. Dusk was laying a gloom over the world when we edged in to an impromptu berth. We lay on the surface, half-submerged for a few minutes for a look at the islands. I knew them well, having been there on several occasions during my Navy days. We had been on guard against submarines from Germany, to prevent them from entering the Gulf of Mexico. A Hun sub could have done tremendous damage if allowed to enter the Gulf and go on up the Mississippi from New Orleans.

Sight of the Isle of Pines recalled glorious memories, but we soon submerged and lay on the bottom, close to shore, while Tom slept off the effects of a bottle of bad rum. I piled into my hammock, leaving David Cantrell burning the midnight oil on some plans for the coming days. The Gulf Stream lay not far off. We would be into it on the morrow!

Once again in our diving suits, the three of us went out into the surrounding water the next morning and began work installing the apparatus that was to be used in extracting the gold from the Gulf Stream. We would be entering it quite soon after backing off shore and continuing from Cuba toward Florida. Cantrell figured that we might as well have our equipment working all the time from now on. We agreed with him insofar as he declared that gold could be had almost anywhere in the Gulf Stream. But his main objective was a given point off the coast of Florida and west of the Bahamas.

There was nothing complicated about the apparatus. That is, there was nothing complicated after David Cantrell described it to me. And, as in the case of the operating principles of the submarine, Cantrell showed his marvelous ingenuity. What he had devised was a number of large boxes which would be suspended along the side of the submarine. Into these boxes the water from the stream would flow, where it would be attacked by screens of durene, a super-sensitive metal. The marvelous quality of durene

was that it could take the gold out of suspension, and precipitate it against the screen where hundreds of small pipes filled with compressed air drew the gold into the submarine. The equipment was devised to operate automatically, and all we had to do was to watch the flow of finely-divided gold particles that would empty from a major tube into a trough in the submarine.

Cantrell figured that if he got only ten percent of the metal passing through our ten boxes, we would have ten thousand dollars' worth of gold each day.

From the equipment visible I could not see where the extracting apparatus cost $100,000.00 which I had invested in the scheme. Of course, I had no knowledge of the cost of such things, especially when added to by difficult methods of delivery under which the *Barracuda* had been built.

As has been said, the Cantrell submarine had been so constructed as to withstand almost any pressure and was capable of diving to unprecedented depths. I had many fears for our lives when the *Barracuda* went down off the Bahamas to a depth that I felt would surely crush it. But the strong, braced hull of the craft showed no effects when it scraped along the bottom of the Gulf Stream and began slowly moving back and forth—for it was Cantrell's theory that the concentration of gold was much greater here. It was so unearthly dark that I felt we had deserted the world forever. We felt the pressure all right but soon became acclimated and accustomed to it. We turned on our surface lights presently and plunged through the murk. The glow from the lights cast strange shadows over the world below the surface.

For hours we thus cruised back and forth. The *Barracuda*, like a whale ploughing into a mass of shrimp to feed, gorged itself to capacity and we sought a sheltered lagoon in the Bahama group to finish the process.

It was with unequalled excitement that I waited within the craft for the return of David and Tom Cantrell who had gone out into the water to watch from the outside the flow of water in and out of the boxes. I stood at my allotted post at the troughs, waiting anxiously for the first batch of material to flow through, little knowing that a grim tragedy was to be enacted beyond my vision. Hours seemed to pass and as nothing happened, to kill time I went to the periscopic screen to amuse myself. At once I saw Tom Cantrell perched on the sloping surface of the *Barracuda* busily engaged in scooping some sediment from the units. The lagoon seemed brilliant and I could see everything with kaleidoscopic clearness. Swarms of strange-looking fish swam sluggishly near as if paying no attention to this great metal fish that had invaded their domain.

Until a man can see what lies beneath the surface off the coast of Florida, he can have only a vague idea of the wonders of that semi-tropical sub-sea world. Weird coral; strange fish that had grotesque streamers flowing behind them, glowing like small electric lights; giant sharks with blinking orbs and untold numbers of water-creatures lay on every hand. I caught sight of one huge fish that had the face of a bull-dog. Its elongated body with a tiny rudder of a tail paused hostilely a few yards away and seemed to sniff. Instantly the jagged barbs along its back and on its belly stood out rigid. The thing appeared to back water for an instant as though preparing to rush. A giant shark hove into view above it but swung away rapidly with great flips of its tail. There was something devilish in the appearance of the hostile thing—the venomous, barb-shooting toad-fish that threatened to charge someone or something. I had a sudden fear for the Cantrells working outside, unprotected by anything but the thin rubberized diving suits, that could be penetrated with little effort.

Attacked!

As I watched, fearfully, thinking of the safety of the Cantrells, I saw another toad-fish swing up and take a position along side of its bristling mate. They stood in the water like logs covered with spikes—like some grotesque water-porcupines, quills ready to shoot with the deadliness of blow-gun darts. I heard the Cantrells hammering around our hull. Buckets scraped on the metal dully; I knew that they were working hard and fast, probably unaware that death might lurk just beyond.

Then with a suddenness that astonished me, the two toad-fish darted toward the *Barracuda*. The abruptness of their attack on the two men outside made me spellbound. Were they attacking the Cantrells? I could not see, for my line of vision was cut off by the slope of the craft's nose. But I had a feeling of something untoward—I felt that one of the Cantrells was destined to die before this venture was over. And my premonition was destined to materialize before many more days, although in an entirely different fashion.

At any rate, I soon heard the Cantrells entering the water-filled tank preparatory to coming within the submarine. There came a hurried hiss of compressed air as the water was being blown from the chamber. Then David Cantrell's diminutive frame appeared in the hood. He had his brother by the arm and was pulling him after him.

"What's wrong, Dave?" I asked, running up to them to help. Tom's head hung strangely to one side as though he were only half conscious.

"Toad-fish!" he snapped. "Barbed him in the chest! Here, give me a hand!"

Quickly we placed Tom Cantrell on the deck and removed his diving suit. He was muttering strange words through lips that were as blue as ink. He was stripped to the waist and from his chest protruded a bony, rough barb from the back of a toad-fish! It had penetrated his flesh just below the breast bone and the skin was already inflamed with a vermilion flush. Every beat of his heart could be observed as the flesh around the wound pulsated.

I reached down instinctively to pull the barb out but David Cantrell grasped my hand and shoved it away.

"You'll scratch your fingers on the damned thing, Roberts!" he shot. "Hand me those pliers!"

A pair of pliers lay on the deck and I grabbed them quickly. Cantrell took them and yanked the barb from his brother's chest. A stream of blue-green matter shot out of the wound, stained us all, and smelled badly, like stagnant salt water. Quickly he placed his handkerchief over the wound, got up and vanished. I heard him rummaging around the medicine cabinet. He returned presently with a razor-edged lancet and made a crossed incision over the closing hole. Into it he poured a lavender-colored liquid.

"Bichloride of mercury," he said simply. "You have to treat certain wounds the same as you treat rattlesnake bites. The toad-fish is deadly poison but I think we'll catch this before the poison spreads through his system!"

But night had long since fallen on the surface world before Tom Cantrell's eyes opened. He asked for a drink of water finally and David, at his side constantly, held a cup to his lips. He drank feverishly and went to sleep. We lifted back the coverings over his chest to see the results of bichloride of mercury applications. The inflammation was decreasing and was now limited to the point of the wound.

For two days our operations in the Gulf Stream went on unhampered by the illness of Tom Cantrell. During that time we piled up a half dozen sacks of gold weighing

all told some sixty pounds. David operated the *Barracuda* himself and constantly investigated the separating units. We had shunned the lagoon where Tom had been attacked by the toad-fish and we never saw such venomous creatures again. They appeared to have been confined to that lagoon for some strange reason.

Then Tom Cantrell announced himself fit for further work. But I noticed that his hands shook a trifle from the ravages of the poison and his lips were still blue. Yet as he exercised, flexing his great muscles to restore his strength, I could see that he was none the worse for wear. He declared the inactivity of convalescing was more torture to him than a dozen toad-fish barbs. But his accident was soon forgotten in the work at hand during the days that followed and we worked with something akin to greed in our hearts.

Rapidly our wealth began to grow, but still we worked feverishly. Thousands of dollars, yes hundreds of thousands of dollars' worth of the precious metal was stored in a little compartment well up forward. We selected a base for operation, finally, just east of Miami. Here, it seemed, the gold coming up the Gulf Stream was more concentrated. Through this we cruised rapidly, getting as much as twenty thousand dollars' worth in a day. But while we sifted the stream for the gold that lay in its embrace, a great fleet of rum-runners was forming above, preparing to unload their cargoes into two submarines that we discovered in the vicinity.

When we first beheld these sub-sea boats, we figured that they were government craft, but the absence of serial numbers on their conning towers gave us a different impression. Then we followed one of them into the Gulf of Mexico unseen. It went straight for New Orleans and cruised submerged up the Mississippi! We learned thereafter that they were the undersea section of a rum fleet, armed to the teeth and ready to battle any government craft that hove into view.

Our first encounter with these rum-runners came about when we shot to the surface for a breath of fresh air and a sun bath. We rose unsuspectingly in the very midst of a small fleet of powerful sub-chasers that had undoubtedly been sold to the runners by the government itself, little knowing that they were to be used for the purpose of defeating the Prohibition laws. These slender, trim little crafts wallowed in the waves as we came up. Instantly they mistook us for a government sub and at once engaged the *Barracuda* whose conning tower was scarcely above the water.

A barrage of machine gun slugs tore the water around us and hammered ominously at our visible structure. A three-inch shell screamed above, hissed by our periscope and whistled away. David Cantrell went at once to our radio and opened up.

"Hey! What the hell do you fellows mean, anyhow?" he snapped into the microphone. "For two cents I'd sink your whole damned fleet!"

I listened tensely for a reply that I figured would come from the speaker.

"Who are you?" asked an excited voice presently.

"We have no fight with you bunch of bootleggers!" snapped Cantrell. "But if you want one, just take another crack at us and see what happens!"

CHAPTER V

The Baptism of Fire

FROM above came at once the throb of churning screws. The fleet was bolting, flying away from there as fast as screws could propel them. When we rose to the surface again to carry out our plans for a sun bath, the entire fleet was swinging toward the horizon, afraid that the mysterious submarine below might trap them. A destroyer was foaming up the Florida coast, belching smoke. They had probably heard the gunfire and were coming up to investigate. We submerged at once, not wishing to be seen by the grim dog-fighter that ploughed toward us. As we sank we heard the thunder of a gun on her forward deck. A shell skimmed the water a few yards ahead of us.

The Cantrells smiled grimly at their posts, but I had a sudden fear that the destroyer would lay a depth bomb down upon us. They must have been wise to the use of subs by the rum fleet and mistook us for one of them. But I heard no dull rumble of a depth bomb and we sank to the bottom and listened to the high-pitched whine of triple screws as the government boat foamed overhead in narrow circles. For the first time in my life I felt a tinge of sympathy for the Germans, who many years ago were thus chased by the watchdogs of the United States. It was a terrible sensation to lie under hundreds of feet of water expecting to be blown to pieces by a sudden depth charge!

But our baptism of gun-fire was not over, for after a time the surface became silent and calm and we went up again expecting to find the sunlighted world deserted. Our oxygen units had in some way become fouled and we found it difficult at times to get sufficient air. But we wanted sunlight. Already our bones were beginning to ache as from rheumatism or the first signs of softening of the bones.

We could have come up in some hidden bay or lagoon on the Florida coast, but we did not want to stray so far away from our field of activity for another day. Perhaps our greed for greater wealth compelled us to remain in the vicinity. I for one, had no desire to quit the game, yet. Another day of twelve hours would add thousands to our coffers; then we would feel content to return to the Pacific coast with no one in the world any wiser as to how or where we accumulated our wealth.

For a long time we listened for the sound of churning screws, but the outside world was silent, apparently deserted. Then carelessly David Cantrell blew the water from the submerging tanks and up we shot like a cork, slowing down as we neared the surface, as a precautionary measure against a too-sudden contact with the air. Without covering our area with the periscope or looking into the screen, we crawled into the conning tower, opened the hatch and hurried into the open. It was good to be in the sunlight again! We stood on the gently rolling sub-surface and breathed deeply, flexing our muscles and legs. Then suddenly we heard the roar of a gun behind us. Instantly we turned as a shell whistled across our bow.

A QUARTER mile behind us lay a submarine, bobbing easily on the waves. It was one of the black craft belonging to the submarine division of the rum fleet. Far away on the horizon floated a heavy smudge of black smoke—the destroyer returning to its berth. Rapidly shells began falling around us, sighing threateningly. One sang perilously close to the conning tower and splashed into the sea. A rattling of machine gun fire reached our ears as we made a rush for the hatch. Steel slugs hammered around us like hail and sang like swarms of bees.

David Cantrell shoved me into the hatch and waited for his brother Tom. I had a glimpse of the rum-runner foaming toward us at a rapid clip. Her surface was alive with men who mistook the *Barracuda* for a Federal craft and wanted it annihilated; dead men tell no tales! As I leaped into the hatch I heard a sickening thud. I looked up. Tom Cantrell clapped a hand to his left shoulder and David shoved him in. I caught him as he plunged head first into the submarine. Dave dropped down after him and clamped

the hatch tight. He raced to the controls like a madman, a stream of blood pouring down his face from a gaping scalp wound. I heard the rush of water filling our tanks and we sank slowly.

Overhead I heard the moan of screws as the rum-running sub passed over. David Cantrell remained at the controls, swaying dizzily, knowing, as I did, that the craft above would submerge and try to run us onto a reef or sink the *Barracuda* with a well-aimed torpedo. Hatred and fear would bring the rum-runner down upon us, but of course, we could outdistance it easily enough. But we were not equipped for fighting. The only weapons we had on board were four automatic pistols, insignificant things against torpedoes and three-inch shells!

David Cantrell shot the *Barracuda* around in a wide circle, watching constantly for a sight of the rum craft in the periscopic screen. The rum-runner presently hove into view and made for us like a streak. I have never seen a government submarine travel so fast under water or on the surface. To me, it seemed that the thing was racing toward us at express train velocity. But that was only my imagination, of course. No, it wasn't my imagination! The enemy craft was coming on—attacking! I shot a glance at David Cantrell. His face bloody, eyes flashing, a terrible frown on his brow, he was heading the *Barracuda* straight for the approaching rum sub! He seemed mad, insane. Surely we would smash head on and founder to our deaths!

"Dave!" I shouted. "You'll kill us! What the hell—"

He gave me a withering look and twisted the control. Instantly the *Barracuda* plunged under the approaching craft and shot upward again like an airplane in a loop.

"I'm going to sink those devils if I die, Roberts!" Cantrell swore. "They've killed my brother! I know it! Look at him and make sure!"

"But you'll kill us all, Dave!" I yelled. "You'll crack our hull open and we'll sink!"

"I don't give a damn what happens, Roberts!" he snapped, spitting out a stream of blood. He seemed to overlook the fact that he was wounded himself. "If they've killed Tom, I'll sink them!"

I bent over the form of Tom Cantrell. Unlucky Tom Cantrell! He had certainly had his share of hurts in this venture. Now he was gasping his last breath as his life's blood made painful exit from his body through a jagged hole over his heart! His lips twisted into a smile; he lifted a feeble hand in the direction of his brother's back. Then he sobbed a great sigh of relief and slumped back lifeless. I closed his lids through which stared sightless eyes, and stood erect—fearful and sad.

"Is he dead?" David Cantrell's sharp, high-pitched voice demanded suddenly. Its biting sharpness made me wince.

The Crash!

I HAD a feeling that if he knew for certain that Tom was dead, he would sink the rum-runner if it was the last thing he ever performed; so that it would be like signing the death certificate of both of us.

"No-o-o, Dave," I evaded. "He's unconscious! He's not dead!"

Cantrell shot a quick glance over his shoulder, settled it upon the still form of his brother and winced.

"You lie, Roberts!" he screamed madly. "You lie! *He is dead!* I know it—I feel it! Tom!—the dirty murderers! I'll get 'em Tom! I'll get 'em!"

"You'll kill us, David!" I shouted, grasping him by the arm. He shoved me away and increased the *Barracuda's* speed so suddenly that I was hurled into a corner from the recoil. He laughed insanely for an instant as he bent closer to the screen to watch for the rum-runner. I regained his side and peered tensely into the square. A half mile ahead cruised the submarine. She was maneuvering to turn. Despite my strenuous objections to the mad scheme that was in his mind, David Cantrell sent the *Barracuda* head-on toward the turning craft.

"What—what are you going to do, David?" I asked, frightened.

"I'm going to rip their conning tower right off their surface, Roberts!" he snarled like a maddened beast. "I'm going to sink those devils if we die on the next turn! Hold tight, Roberts! Here we go!"

I barely had time to brace myself against the railing when a terrible, ear-splitting crash caused the *Barracuda* to shudder from stem to stern. I closed my eyes for an instant expecting to hear the rush of water into it. The craft wobbled drunkenly, turned suddenly and once again made for the doomed rum-runner. I saw the craft in the screen as we turned. Its periscope had vanished and to the conning tower clung a twisted mass of metal that I knew at once was one of our bottom runners.

Like a killer attacking a sperm whale, the *Barracuda* streaked through the murky blue-green water with deadly intent. The rum-running submarine seemed to stand deathly still as we came upon it. I had a close-up view of the twisted structure as we closed. It was torn and jagged but not leaking, apparently. There was still another hatch below the top one that must be opened before water could pour into it.

The crash hurled me flat. David Cantrell grappled with the controls. There was another crash; we shot toward the surface like an air-filled tank. I ran to Cantrell's side to peer into the screen. I saw the rum-runner wobbling strangely as water poured into it through a gaping hole that had once been the conning tower. It rolled over suddenly and gyrated downward like a water-soaked log.

But we were not to escape so easily! Three minutes after the crash we found ourselves ankle-deep in water! The seams had opened up somewhere along the bottom and through them filtered slow death. Cantrell groaned and then straightened up.

"I guess I've done it, Roberts!" he said, sadly. "I should have controlled myself—but somehow I wanted revenge for Tom! Poor devil!"

Then he raved again with an insane anger. I could not blame him but I certainly did not want to die. I ran into the engine room to find the source of the leak. Water was pouring in rapidly from a cracked seam under the starboard engine. It was impossible to reach it without removing the motor. Our goose certainly looked well-browned to say the least, for we were miles from shore and far below the surface! I informed Cantrell of my discovery. He swung at the controls again and put on all speed. The *Barracuda* shot like an arrow through the brine, cleaving it in twain, water rapidly rising around our legs. A sudden rush picked up Tom's dead body and rolled it into a far corner out of sight. We paid no attention to it. He was dead—we could do nothing for him. We lived—and we wanted to continue living!

WE heard a scraping crash presently that told us something was being torn from our bottom. The remaining runner, hanging in a twisted mass by one infinitesimal rivet, had broken loose and become entangled in our rudders. Instantly the *Barracuda* was racing swiftly out of control. It shot upward terrifically, leaped clear of the water and burnt out its screw bearings. The propellers roared now and presently a drive shaft cracked off at the port motor. The craft spun around sharply and continued on in dizzy circles under the forward driving of her star-

board screws. But we were skimming along on the surface now. David Cantrell had automatically blown the water from the tanks. Yet as the water swept around us, ever rising, I knew that sooner or later the functioning motors would explode.

"Grab a life-preserver for yourself, Roberts!" Cantrell snapped suddenly. "Get me one! I'll hang on and try to steer us toward shore! It's only a mile or two away!"

I strapped two life-preservers around him as he stood at the controls fighting to keep the *Barracuda* on the surface. In the screen I glimpsed the Florida Keys.

"Open the conning hatches, Roberts!" he ordered after the life-belts had been placed upon him. "We're going to get out! We can't keep the old *Barracuda* on top much longer! We're going down!"

I ran to the tower and unscrewed the levers; then pushed open the hatch covering. A solid deluge of water poured in as I went down toward Cantrell. It stopped suddenly as he made a frantic effort to lift the sinking craft so that the hatch should remain above the water line.

"What about the gold, Cantrell?" I yelled at him. "We can't leave it—!"

"Then grab a couple of bags and stow it in your pockets!" he roared. "Hurry! Bring out a couple for me! I'll take 'em along! We'll need them to build another submarine to come back here and get what's left! Pile 'em under the tower and I'll grab 'em as I make for the open!"

I made two crazy trips to the storeroom up forward. The bags were piled high. I gathered an armful and deposited them where Cantrell could get them as he raced to safety; then filled my pockets, five pounds of gold in each. I struggled through the water that had now reached above my knees. In another minute the *Barracuda* would founder and sink to the bottom. My mind raced. If we could get out safely it would be easy to make one of the islands in the Keys. But I hated like the devil to quit the gold for which we had worked so hard. Greed! But I did not stop to think of greed. I only had a desire to get as much of the stuff as possible. Then I remembered what Cantrell had just said about coming back to get what was left.

I luffged out of the compartment shortly, and made for the tower. By some miracle, Cantrell had kept it above the water and was keeping the upper propellers churning. I stumbled up the ladder and paused in the hatch. The *Barracuda* was settling gradually; her speed had diminished to a bare few knots! Would Cantrell make it before she sank? Perhaps after all he would want to be with his brother in a grave far below the rolling surface of the Gulf Stream. The Gulf Stream? Thought of that moving body of water caused me to almost tumble from my perch!

If the *Barracuda* sank in the Gulf Stream, God knows where it would be carried to! Perhaps we would never find it again. But it would be worth while searching for it the length and breadth of the Gulf Stream. As Cantrell's head and shoulders suddenly appeared in the open tower, I sent up a fervent prayer that the *Barracuda* would bury its nose in some sheltered reef and there remain until we could build another submarine to look for it. If the Gulf Stream did pick it up and carry it along, I prayed that it would not be covered by sediment and silt! But if it was, well—we'd have another submarine, the *Barracuda II*, to repeat the feats of its namesake!

But it was with misgivings that we leaped from the conning tower as the craft sank under our feet, her upper screw still churning, weakly. I heard the motor sputter within her and then we swam shoreward, held up by our double preservers.

Poor Tom! Perhaps some day he will be given a decent burial. I felt though that he would much rather rest in peace within the confines of the sunken *Barracuda* than in any grave on land. It was a shrine, a monument to a brave man. And even now, David Cantrell, with help, is building the *Barracuda II*. In another year it will be in readiness for one more attempt to obtain the riches that flow with the never-ceasing current of the Gulf Stream!

What Is Your Knowledge of Science?

Test Yourself by this Questionaire

1—What is the fastest swimming fish? (Page 1064)

2—To what extent is the Gulf Stream permeated with gold? (Page 1065)

3—What is the simplest animal organism? (Page 1078)

4—What is the distinction between the cerebellum and the cerebrum? (Page 1080)

5—What benefits might arise from the control of cellular growth? (Page 1095)

6—Is a spider carnivorous? (Page 1096)

7—What are the functions of a pseudopodium? (Page 1109)

8—What is the life span of a turtle? Page 1112)

9—What are chromosones? (Page 1112)

10—How long ago did the Dawn people live? (Page 1120)

The INFINITE BRAIN

by John C. Campbell

(Illustration by Paul)

It came suddenly, rushing with awful swiftness on the town. One great leg swung out with a push, breaking down telephone poles . . .

THE INFINITE BRAIN

I HAD known Anton Des Roubles, off and on, for more than fifteen years and was his closest and perhaps only friend. At least, no one else came to visit him, excepting collectors whom he paid regularly. He never went out to theaters or parties and apparently had no relatives.

I met him in 1923, when I was employed by a machinists' supply house with which he dealt, and so had occasion to take orders for and sometimes execute delicate work that he wanted. It was perhaps our mutual interest in mechanics that did the most towards bringing us together.

JOHN C. CAMPBELL

For my part I was immensely curious as to what Anton was working on. He seemed interested in automatons and derived considerable income from a patent covering an automatic time clock and burglar alarm system. His apartment was taken up mostly with a sort of laboratory, where he conducted various experiments. He was saved from expulsion from the apartment only by the high rent he paid. In fact his erratic turn of mind often led to annoying and sometimes grotesque results.

The people in the apartment below were constantly complaining about the hum of motors at all hours of the night, which complaints Anton silenced with pecuniary mufflers to the landlord. But one night matters came to a state where even money could not prevent trouble.

A number of young midnight revelers, returning from some roadhouse, came face to face with the most terrible apparition in the dim upper hall. It was shaped like a man but walked upon legs made of jointed steel rods. Its body, they said, looked like clockwork and it walked slowly and deliberately toward them. All were partly intoxicated and one of them grabbed the strange object. The thing at once struck him a terrific blow in the shoulder, throwing him to the floor. Later they told the police that it had stood still just like an animal at bay, and had waved its long feelers about, striking with lightning-like blows at whatever it touched. It hit another man, stunning him, and then struck the wall twice, after which it fell to the floor and lay still.

THE young people, horrified at the thing, had fled downstairs, where the janitor notified the police. When the latter came in, the midnight wanderer was not in the hall; but it took little searching to locate it in Des Roubles' apartment. Des Roubles was summoned to Court, but as no charge could be brought against him, he was released.

Reading the account of the episode in the papers, I went, on the morrow, to the apartment to see this mechanical wonder. With some pride my friend showed me the thing. It stood in a corner, suspended by a wire from the ceiling, like skeletons hung about in laboratories. One arm was off, lying on a bench where some repairs were being made. In place of a head, the weird thing had a score of rods, arranged in a circle, and connected to an equal number of long slender feelers of varying lengths. Anton, for once, was disposed to be communicative.

"You see," he explained, as we sat in his living room, enjoying our iced tea and cigars, "this machine is only the first step in what I am working toward. I suppose I am the only person in the world spending money upon such a fool thing, but I feel that every day brings me nearer my goal."

He smiled, and as he was evidently mellowed by my Corona cigar, I put a question I had long premeditated:

"But what are you working toward? I can't see any purpose, beyond novelty, in all this, Anton."

Anton laughed. "Really, Gene, I shouldn't keep you on pins and needles so long. I don't know why I haven't told you long ago. Well, now that the Press has part of my secret, there's no use hiding it any longer. I'll tell you all about it."

I leaned forward, wondering what he would say.

"You see, Gene," he began, "this is only a diversion, as it were, from my real work. The work itself is this: I am attempting to construct a mechanism exactly duplicating the mechanical and electrical processes occurring in the human brain and constituting the phenomena known as *thought*."

He stopped, observing my sudden surprise. "Now, that may sound rather deep, but it isn't really; at least the principle isn't. I am trying to make a mechanical brain, that will think, reason, remember, have likes and dislikes, loves and hates; that can read, write, appreciate a joke, or smoke a cigar."

I was perfectly amazed at the idea. In all that whirl of thoughts, I seized upon one I could understand. "But how could a cigar . . ."

Anton Explains

"TUSH! tush!" said Anton, "forget the cigar. I haven't attained my goal yet, so I don't know how a cigar would work. However, I have gone quite a way. I have

ONCE in a great while a story comes along that, for sheer originality and uniqueness, immediately commands respect.

We believe the present story to be one of this kind and in our opinion it is easily one of the great science fiction stories of the year.

The "Infinite Brain" is a tremendous story from beginning to end. Not only is it quite original but it is a dashing story of great adventure. And, if we do not miss our guess, it will be one of the most discussed stories of the year.

And lest you jump to the conclusion that intelligent, or quasi-intelligent, machines are pure figments of the imagination, remember that already, today, we have machines that can "think" faster and better than any human being. Adding, multiplying, and dividing machines and even machines to work problems in calculus do many things far better than the human brain can.

If you have visited a modern automatic telephone exchange, it will be brought home to you that, indeed, here is another intelligent machine that "thinks" straight and makes no mistakes.

There is in use today a tide-predicting and calculating machine used by the United States Government, which machine is universally recognized as doing the work of a number of men in calculating and solving the most intricate problems.

There is no question that, in the future, even more wonderful machines will be evolved along these lines.

worked along the following line. Starting at the very bottom of the scale of animal life, and disregarding organs of digestion, reproduction, etc., I climbed the scale of life, making each machine profit by what I learned from those below.

"The amoeba is the very lowest animal organism, so I started in with a little thing mounted on a coaster wagon, containing an electric motor, some cog wheels, four electro-magnets, and electric buttons. It exactly duplicated every move of the amoeba as seen through the microscope—everything excepting eating, which is unnecessary, since eating only supplies power for life, and the same power can be supplied through a wire. I found that my little wagon would go forward until either it bumped into an obstruction, or the temperature increased, or it was struck from one side or behind. At any of these happenings it would stop, back up, turn to one side, and then go on again.

"That is exactly what the amoeba does, and that is all it can do. Therefore, you see, my coaster wagon was just as intelligent as the amoeba. From that beginning I went on up the scale of life. No, I didn't follow exactly all the steps. I simply added various units to the original amoeba-base, such as the ability to distinguish light from dark by using a photo-electric cell, the ability to tell the difference between a soft and a hard substance, etc.

"Most of the animals I built right there on the laboratory table, as you would put together a radio set. The various limbs, eyes and antennae I connected by wires to a considerable distance—for convenience."

Here I asked a question: "Where on earth, Anton, did you get all the apparatus? Surely you can't buy . . ."

He smiled: "Ever been inside an automatic telephone exchange? They have machines there which do all the work of operators, and do it a thousand times faster and more efficiently."

Then, laughing at my surprise, he continued: "This iron man that frightened everybody last night wasn't half so intelligent as some of the things whose brains have been spread over my laboratory table. All it could do was to walk and fight with anything which interfered with it. I made it as an experiment in gyro-balancing and the exercising of the limbs."

By this time, with my interest completely aroused, I began asking for details. But—just like him—Anton shut up like a clam; telling me to run along and get some supper. He turned calmly and walked into his laboratory.

The Dead Man's Room

FOR perhaps a month business kept me away from Anton's apartment. Then, like a lightning bolt from a clear sky, I received a phone call from a well-known firm of attorneys. "Mr. Lawrence, this is Cecil & Rhody. We wish to inform you that you are appointed sole beneficiary in the will of Anton Des Roubles, who . . ."

"Will?" I gasped. "Anton's will? Surely . . ."

"Haven't you been informed? Anton Des Roubles died at his apartment two days ago."

A quick trip over to the attorney's office verified the terrible news. From there I drove up to the apartments, and took the elevator to Anton's rooms. In the front living room sat Anton's chauffeur, evidently guarding the place from too inquisitive reporters. Mr. Cecil of the firm announced who I was and a little later they both left.

I was alone in Anton's laboratory. When I entered I had some idea of dismantling his apparatus and selling it, but a glance was enough to convince me that something out of the ordinary, decidedly out of the ordinary, was going on.

Let me describe what I saw: There were four tables some eight feet long by five feet wide in the middle of the floor. All of these were covered with a maze of little wheels and levers, slides and pulleys, all mounted on a series of long racks. At each end of the four tables was a large electric motor, connected to a long shaft. A vast number of little belts rose up from this, and were connected with numberless cog wheels, which in their turn engaged others. There seemed to be some arrangement of little keys, resting on metal plates, and a sort of system of tiny slugs, like the matrices on a linotype; but everything was so mixed up with wires and coils and wheels that it was impossible to get any of the details.

All of the four tables were the same and each was connected to its fellows by hundreds of wires.

Everything seemed to centralize in a corner of the room where there was a black bakelite panel, supporting a lens, several dials and a typewriter keyboard. In front of the keyboard was a chair and in its seat was a piece of paper on which was written:

"*Turn on the switch marked 'L.'*
ANTON DES ROUBLES."

I STARED at this for a moment, in wonder, and then looked at the frame in front of me. Then to one side I saw an ordinary electric light switch with the letter "L" printed beside it in paint. For a moment I actually feared what was to happen, and then, steadying myself, I reached forward and threw the switch.

For an instant all was still: then from the tables there came a steady, droning hum. I saw that the motors were going; then I saw, just behind the rack where the keyboard and lens were, a tube glowing dully. As I watched it, the light suddenly brightened and at the same instant a great clatter and tapping began to come from the racks of apparatus.

In wonder I watched, and discovered that all the little wheels, belts and pulleys were working; that a thousand little keys were rising and falling, like tiny trip hammers, and that the metal slugs were sliding and dropping from place to place like insects. For a full minute I stared at this scurrying activity in stupid amazement. Then I thought that I must do something. This constant clatter and buzz seemed to have a human note in it, as though it were directed by an unseen operator.

I wondered if Anton were really dead at all! Then I was called back to Earth by the sharp ringing of a little bell at the switchboard. I stepped over and started to reach for the switch to turn all this devilish machinery off, when from the center of the rack came a rapid succession of little taps and a piece of white paper with some typing on it slid out between the two rubber rollers at my elbow.

I stared in amazement at the sheet. It read:

"*Do not turn off the switch. Wait.*
ANTON DES ROUBLES."

Anton Des Roubles! My brain reeled. What could it mean? Could it be possible that . . .? Again the busy tapping began inside the machine. This time it lasted longer. When it stopped another typewritten piece of paper was projected out to me. Like an automaton I grasped it and silently read:

"Do not touch the machine. I, Anton Des Roubles, am dead—my body is dead—but I still live. I am this machine. These racks of apparatus are my brain, which is thinking even as yours is. Anton Des Roubles is dead but he has built me, his exact mental duplicate,

to carry on his life and work. If you wish to communicate with me, write your message upon the keyboard in front of you."

The Arm of Steel

FOR a full minute I stared, speechless, at the page. My hand shook, as with an ague, my eyes stared blankly before me. It could not be possible! No, such a thing could never happen. Nevertheless, I reached forward and began slowly to write on the keyboard.

"I cannot believe that you, a machine, are human. You must give me some proof as to who you are. A machine cannot do the work and the thought of a human. A machine cannot . . ."

I stopped, and then looked quickly at the big lens before me. It seemed that I had seen it move—or was it an illusion? Stepping back, I moved rapidly over to the other side of it, when—horror of horrors—it followed me! The strain proved too much. Running from the room I slammed the door of the laboratory violently. In the living room I threw myself down upon a couch to become calm. The thing could not hurt me, I reasoned. I need but touch the switch and it would be dead forever. I remembered reading of a machine which could do the most complicated mathematical problems. I thought of the adding machine, of the automatic telephone, and as I did so, my nerves calmed.

After a moment I arose from the couch and, walking steadily, returned to the laboratory and its maze of clicking humming apparatus. Stepping up to the switch-board, and keeping my eyes averted from the big dark lens, which I sensed was watching my every move, I reached for the switch. But even as I did so, a frightful thing happened.

From a position on the floor which I had not noticed, a long, many-jointed metal arm shot up and seizing me about the waist dragged me away from the rack. I struggled, I shrieked—but of what use are mere muscles when pitted against cold, tireless steel!

In spite of all my struggles and yells I was held quite still. When I finally relaxed, the tapping began again inside the machine and a third printed sheet was thrust before me. With bulging eyes I read it.

"Do not try to turn off the power. Your mind is temporarily unbalanced. Fortunately I foresaw this, and provided myself with an arm to defend myself. I intend you no harm. Please try to see me as your old friend Anton, not as a piece of machinery. I can exist only with your help. I shall free you in a moment."

I looked at the wide unwinking eye of crystal. I stared into its cold depths and tried to imagine I saw the jolly face of Anton Dex Rouble there. Then I nodded my head and held up my hands to signify that I agreed.

Immediately the steel arm released me and dropped to a position just above the electric switch that was its life source. Moving slowly, to show the monster that I meant no harm, I began to write a message on the typewriter.

"I am satisfied that you live, yet it seems impossible that you are Anton. Anton is dead; how can you exist as Anton?"

As I finished this I looked earnestly into the lens, waiting for some sign, but the only answer was a swift pattering inside, which told of a message being typewritten. I waited.

Again a slip of paper came out. I read it.

"I am not Anton Dex Rouble himself, but his exact duplicate. When Anton felt death approaching, he built me. He made my brain precisely like his, built three hundred thousand cells for my memory, and filled two hundred thousand of them with his own knowledge. I have his personality; it is my own through a process I will tell you of later. He made my eye on the same principle as television; built, instead of an ear, a typewriter keyboard; instead of a tongue, an arrangement to print letters on paper. I think just as you do. I have a consciousness as have other men. I could be frightened —in fact, I was frightened when you reached for the switch, for turning that off would be like death to me. If you want to tell me anything, write it."

As I laid down the paper I stared at the high metal switch-board, with its great round eye, and almost gasped in my astonishment. The explanation was even more wonderful than the machine itself. Reaching over to the keyboard, I typed out— "I believe in you. Shake."

Grasping the upraised steel arm, with its cold metal fingers, I shook hands over, perhaps, one of the strangest agreements ever made in the history of the world.

CHAPTER II

Envious of a Machine

AS the hand of this monster released my fingers from its cold grip, I dropped back to the wooden bench which lay against the wall. The big round lens watched me steadily and the never-ending clatter and hum of the apparatus testified that the wonder before me was still an intelligent, animate thing. As I wondered what I should do next, the rapid patter of the keys inside betrayed the typewriting of another note. I waited, and in a moment the little slip of white paper was slid out from between the two rubber rollers. I read it:

"If you wish, you might go out and get some lunch. Leave the switch on. Return in an hour."

I nodded vigorously in the direction of the lens and then, to give further assurance of my intentions, I wrote "Yes" on the keyboard. Then, carefully locking the door, I literally fled from the apartment house.

At the lunch-room the waiter eyed me curiously as though I appeared queer to him—which I probably did. I pondered on what the waiter would say or do if he knew the kind of a friend I had been hobnobbing with. I looked oddly at my coffee and rolls and tried to compare them with the steady flow of electric power that was Anton's food. He would never be hungry; he would never be thirsty or tired; no disease could touch him. His parts could be replaced as they wore out; he was practically immortal. For a moment I became almost envious of that great, complex machine up there in the laboratory; but then I thought of the other side of it. Anton could never feel the joy of exercise, or eating, or recreation! All he could do was to lie there and think, or move his solitary arm about in a very limited radius.

As soon as I finished my meal I bought a paper and then hurried back to the apartment. The open door let out a buzzing clatter of small objects being moved rapidly, which showed that Anton was still alive. As I entered the laboratory, he raised his arm above his eye in an odd sort of salute, and then dropped it again. Reaching for the keyboard I asked, "All right?"

"Yes," he answered. "Sit down. I have something to tell you.

"First," he said, when I had complied, "you must promise me the greatest secrecy. You must tell no one, not even

your closest friend. You must live here with me, to protect me until I can protect myself. Do you promise?"

Receiving my affirmative, he continued:

"WE have—you and I—a great work ahead of us. In the body of my predecessor and maker I never told you what I was working toward; now I shall, through necessity. A Mechanical Mind, equal in mental ability to the human intellect, was not my great goal. Listen very carefully and I will explain to you:

"The workings of a brain, either human or animal, are explained to a great extent by reflex action. That is, a purely mechanical reflex—a cause-to-effect arrangement of nerves. When one burns his fingers, the pain sensation is sent to the spinal cord, from which it is led to the brain. However, while it is still in the spinal cord, it meets a certain little cell of gray matter which, the instant it receives the pain message, sends out an impulse that pulls the finger from whatever hurt it. That cell does nothing else, and is called a reflex cell. Habit is a reflex action; so is breathing. When one learns to ride a bicycle he creates a set of reflex cells which take care of the balancing and steering, and leave the brain free to think of different things. Without reflexes we could never learn anything important, for all of our brain would be taken up with doing simple things, such as walking, breathing, etc. So you see that the human brain consists of two divisions: the cerebellum, which controls the reflexes, such as memory, habit and mechanical motions; and the cerebrum, the part of the brain that actually reasons. The reflexes are easy to copy; in fact, any of our automatic machines are reflex devices. The adding machine, the automatic compass; the robots, which do various tasks when commanded over the telephone, and the automatic telephone itself, are examples. So the building of three-quarters of the human brain is only a matter of mechanical skill.

"The other fourth, however, is vastly harder to duplicate, but it can be done. *I* am a living proof of that. You must read carefully to understand what I am going to tell you.

"Success was made possible only through a device whose magic properties I had never more than skimmed over. I call it the Telepather, and that is what it is. Mental telepathy has been only half-proved and it remains for me to actually prove it.

"Thought in the human brain consists of tiny electric impulses. Like all electric impulses, thoughts create magnetic fields, making each brain like a miniature radio transmitter. Now there are a few brains that can receive these waves through the air. That is called mental telepathy. In order to duplicate the cerebrum, that fourth part of the brain that reasons, I had to solve the problem of telepathy first. This I did, and the result is the Telepather. Through this instrument any one's mental condition can be exactly duplicated. Not only is thought transmission possible, but one's very disposition can be changed. One can be taught an entire foreign language in a half-hour. A negro stevedore can acquire the culture of a Longfellow in a day.

The Mechanical Brain

"BEYOND proving this to my own satisfaction, I have not attempted to experiment much with the Telepather. However, I did use it for a purpose as much more wonderful than the Telepather as the Telepather is greater than the telephone.

"Now, Gene, every individual human being has a personality different from every other. They all have reflex actions, which differ as they know and remember various things. But the important variation lies in the cerebrum—the reasoning brain. It is like this: Each cerebrum is an enormously complex system of sensitive reflexes. The reflexes of the rest of the brain compare to it as a dollar alarm clock does to the delicate works of an expensive watch. Now the reflexes in the cerebrum of every person in the world are exactly similar. The difference is in what one might call an electric sieve.

"Imagine continuous series of sensations going through the brain. Now if there were an arrangement whereby various circuits in the brain could be cut off and on, in a certain pattern, the impulses would be changed by passing through these switches. As an example, in a certain brain the circuit is disconnected at the rate of five breaks per second for three seconds, then a break of one-third of a second, followed by two 1/100th second breaks and then by various other combinations, and the whole repeated again and again. An arrangement of that sort would affect all the incoming and outgoing sensations, and consequently the thought of the brain.

"Now imagine just the same kind of brain with the same sensations going through it, but have a different system of breaking the circuits. Perhaps thirty 1/48 second breaks, followed by seven 4-second ones. That would make the thinking of that brain totally different. The difference in the arrangements of the circuit-breaking is what makes the differences in peoples' minds.

"Every baby is born absolutely without any making-and-breaking circuit. Hence every baby is exactly like every other, save for some inherited traits. But with the developing of the memory, the baby's cerebrum becomes more and more differentiated from others. Two babies brought up exactly the same way, hearing and seeing exactly the same things, would, theoretically, be identical. So much for the theory.

"Practically, the thing was easy. I built a cerebrum, and then proceeded to engrave on a steel phonograph disc the record of one complete cycle of my brain's circuit-breaking. By stopping all outside thoughts with a powerful drug I succeeded in catching, with the Telepather, bits of this vital formula of circuits, which, when put together, made a sort of dot and dash record of my personality.

"ONCE the record was made, the rest was easy. I connected its phonograph needle to a circuit-breaker actuated by electro-magnets, started the motor, and Anton Des Roubles' exact mental counterpart began to live. I am that counterpart; I talked and congratulated my maker, received his congratulation and even assisted with my arm in finishing myself. But the hard work, the worries and struggles, took their toll upon Anton. With his work accomplished, no longer having the fiery zeal of unsatisfied ambition to hold him up, tuberculosis long dormant in him became active and claimed his body.

"He bequeathed his fortune to you so that you might care for me, and he left the message here. That is all."

The clicking within the machine stopped and I sorted the several sheets of typed paper in my hand, more amazed than ever before, now that the whole idea of the thing was forced into my mind. Standing up I looked carefully over the framework supporting the lens, keyboard and writer, and started to peer behind. Instantly a note came out.

"Touch nothing," it read.

More careful now, I peered behind the bakelite panel where I saw the stripped frame of a typewriter, connected by many short rods to electromagnets. Above and back of the lens spun a television disc, giving out a faint hum as its photo-electric cell captured the image of what lay before it. Then I saw what I had been searching for. Supported upon steel springs and under a glass case was a motor

driven phonograph disc. In order to keep the continuity it was arranged with an automatic mechanism to start another needle at the beginning of the record, the instant the first needle reached the end. As it spun, I caught a peculiar hum interspersed with rapid buzzes and shrill, sharp whistles. The phonograph arm was connected by cables to the nearest rack, where a big electromagnet vibrated a slender arm of shining steel. Making little of what I saw, I returned to the chair in front of the lens and typed on the keyboard:

"What now?"

Immediately a strip of paper appeared. On it I read: "I will explain. Read carefully."

After that came a succession of sheets bearing together another long message from the mysterious mazes of the intelligence before me.

CHAPTER III

An Infinite Brain

"THE human race has what is known as a finite mind. That is, it can conceive only of things measurable in fixed units. It can see and understand the difference in size between a baseball and a football, but what human being can really visualize the tremendous difference in mass between an atom and the Earth? A man can see an auto, he can see the Woolworth Tower; and with no great trouble he can understand the ratio of size between them. But only a scientist, with a highly trained mind, can understand the true ratio between an auto and the Earth. Let me give you an example:

"Most people know of the Light-year, the astronomical unit of measurement which is the distance a beam of light travels in a year. But who can conceive of a Light-year, something over six million million miles, stretching out before him? Not even the greatest astronomer in the world can grasp that idea! Man's mind is finite; it can only understand the true proportion of things measurable in a very small number of familiar units.

"Furthermore, a man with his finite brain can only understand the situations and conditions that are comparable to those with which he has had experience. A finite mind can only draw deductions upon its past experience, the reliability of which is based upon the amount of the experience. Thus you see that a man who possesses a great deal of stored up experience or knowledge draws truer deductions than one who has not so much. A chemist, specially trained in his line of work, is successful where the mere layman, having no knowledge of the subject, cannot even begin to reason out a problem. Likewise a baby, who has practically no experience, cannot walk.

"Thus you see a finite mind is limited by the amount of its experience, and since experiences can never be infinite in amount, a finite mind can never understand or conceive of infinite quantities.

"And if a man had an infinite mind—what then? He could understand the entire Universe at a glance. He could grasp the idea of the unsolvable problem of the three moving bodies, and get the answer. Great problems in long division, which take mathematicians hours to work out, he could solve in a moment by looking ahead and conceiving the thing as a whole.

"A man can divide seven by four in a few seconds, because his mind can grasp the idea as a whole; but he cannot work a problem containing fifteen or twenty figures in the same way. He must take it in small bites which he can digest.

"An ideal infinite brain would be different in the fact that it would be able to make instantaneous deductions, without drawing upon any stored knowledge or memory. That is, it must not have any reflex sections, but must be all cerebrum. Only with such a brain is it possible for every thought to be original, beginning in the sensation and ending with the finished action.

"THAT would be the ideal infinite brain. However, it is unfortunately impossible to construct such a thing, as it would require an infinite variety of senses. But it is possible to build on the same principles, a brain so near the ideal that there is no practical difference. That is what I am working on and it would have been made if Anton Des Roubles had not been compelled to use the apparatus designed for it in my construction. Now I see that you are beginning to get my point. I'll admit it is a little hard to conceive of at first, but just think it over and you will soon see it clearly."

The tapping inside the panel stopped and I stared at the rubber roller.

Finally I wrote on the keyboard, "With what you have done, nothing is impossible. Give me directions and I will do anything you wish."

But Anton only waved his arm at me and began typing again:

"You cannot do this thing, even with my directions. I will have to build it myself. But you can help me; my one arm with its two fingers is not enough. Under my directions I want you to make me two more arms, with ten fingers each and two more eyes and a number of smaller arms. You can mount this all on a wheeled rack, connected by wires to this panel so I can move myself around. You understand?"

"Yes."

* * * * *

Two weeks had passed and my work was done. Nights were spent sleeping in the bed room of Anton's apartment, and days in assembling thousands of pieces of metal on a wheel carriage. For a base I used a rectangular pipe metal frame, about four feet long, three wide and three high. It was mounted on wheels, which were powered by a motor. A series of electromagnets controlled a rheostat for the motor, and another larger motor worked the six arms through a drive shaft and gear. Two were very long and contained sixteen joints. The other four were shorter, with eight joints. A pair of three-inch lenses on a movable rack, coupled to a television apparatus, surmounted the weird thing.

As soon as the two large arms were finished, I connected them with the switchboard and thereafter Anton helped me with the rest.

It was a weird, ghastly kind of life to lead, but the wonder of it fascinated me, until I grew almost to love the sound of the machines. During the nights Anton would hold a magazine before his eyes and read hour after hour. He never grew tired, for all he needed was oil and a steady flow of electricity. As an interesting side-light, Anton told me that he read with a speed of over thirty words a *second*, which was made possible by the large area of sensitivity in his television "retina." He read, not individual words but entire paragraphs, taking each paragraph as a whole and grasping its meaning at once. Naturally with this rapidity of reading, he consumed a vast amount of reading matter. He read a 300-page book in fifteen minutes, an average story magazine in seven or eight. I recall that during one night he consumed 21 library books, 16 magazines and the complete Sunday editions of four newspapers!

The Brain Grows

HE read jokes which, he told me, would have made him almost go into fits of mirth were he in his own body;

but, as he was, the calm dark eye only stared at the printed page without expression.

Every noon I would go out for an hour or so to eat and take some exercise. It was winter, and the bleak cheerless park had little to offer me in the way of rest; and so I usually purchased four or five dollars' worth of magazines and returned to the apartment.

At last the body proper of Anton Des Roubles was finished. I had connected the last wire to the switchboard that evening. Anton was very busy trying out his new members, as far as the thirty-foot length of cable would permit. The day before, I had carefully moved the tables containing his brain over towards the corner of the room to make room for two more tables to support a new creation.

Now the racks for the new apparatus had been delivered, all wrapped up in straw. Anton and I set them up on the table; then we began to construct the wonder.

First we slid in an eight-foot length of steel rod, with something like 600 little cog-wheels on it. This was connected to an electric motor. Just above the shaft we affixed three more rods with 1200 pulleys fastened on them. Beyond this I did very little. Anton's many arms were many times more efficient than I could have been, and he worked with wonderful precision.

As day after day passed, the thing on the table grew. While in the evenings Anton read or talked with me, he explained that the infinite brain would not have to be a complete new unit. More than a third of it, consisting of the Memory and Centralizing Units, would be taken from his own brain and connected to the new brain. This, of course, would "kill" Anton's brain, temporarily, leaving me quite alone while the big experiment was in progress. However, Anton assured me that there would be no danger and he would soon be back with me to read the notes I should give him.

The Coming of the Brain

IT was evening. The setting sun had been bathed in a vast sea of blood and a heavy yellow fog was rising like a ghost from the river. I had been away from the laboratory all the afternoon at a movie, trying to steady my nerves for the ordeal before me. Now, as I put my key into the door of Anton's apartment, my blood felt chilled. The fog had penetrated even to the apartment building, and had dimmed the lights.

From beyond the closed door to the laboratory came the ceaseless clatter of the machine. Now and then a new note sounded: a sibilant humming, rising and falling like a night wind. I recognised this as the motor of the "traveler" —as Anton called the wheel carriage. Once I heard a newspaper rustle, as though someone were folding it. Tonight was the night that I was to kill Anton and build, alone, such a thing as man had never built before!

Alone I was to watch consciousness creep into a being whose equal has never been seen in the Universe—to talk with a Master Intelligence that I had helped to build!

Struggling to cast these depressing thoughts from me, I took off my vest, rolled up my shirt sleeves and entered the laboratory. Anton was reading the evening paper. As I entered, one of his arms indicated a pile of neatly typewritten paper on the bench. I picked up the first sheet.

"Your instructions. Obey them to the smallest detail, for it is important. Be careful, my friend, above all—be careful. As you make each connection, be sure that it is tight. Test every part. Remember that if you destroy one of the units of my brain, you will not be able to repair it, and I shall not be here to help you."

Then followed many pages of directions for dismantling the units of Anton's intelligence and connecting them to the new Brain. I read them over carefully and Anton read the newspaper. Finally I finished reading and wrote a message: "I am ready."

He replied: "And I also. Turn off the power, and . . . Good-by. Just for a while, I hope!"

"Good-by," I answered.

As I reached to turn off the switch marked "L," I felt a premonition of evil. I looked straight into those great round eyes which were bent on me, and then snapped off the switch. The hum of the motors and clatter of the keys died away.

With the passing of that familiar sound, I felt that I was truly alone. The big lenses which stared at me seemed to have lost their quality of life. The room was silent—deathly silent.

Pulling myself together with an effort I picked up the screwdriver and wrench and began carefully to disconnect the Centralizing and Memory Units of Anton's brain. This took only a few moments. Then I rolled the two tables over to the incomplete apparatus on the new racks. Carefully following the intricate directions, I began to fasten the wires together. At best it was a slow business, but by 10 p.m. I had finished. Twice more I went over the whole thing, tightening the connections and checking up on every detail. Finally it was done.

STEPPING back a foot or so, I surveyed the work; looked at the tables of apparatus with their hundreds of wires hanging down where they had been disconnected; then, with one final glance at the wiring, I turned the switch and quickly retreated to the wall, from which I watched the weird thing about to go on before me.

Let me tell just how it happened. First, came the low hum of the dynamo; then a rapid clattering and a great bustle of sliding. A vacuum tube glowed brightly in the midst of it; that was all. Gathering courage, I stepped up to the switchboard and gazed steadily at the great eye. By no movement did it betray that the creature was alive. Then from inside came the sharp rat-a-tat-tat of typing. I watched the pair of rubber rollers, wondering what message would come out. Some wondrous revelation of Nature? The answer to one of the unsolved riddles of Science? I waited. Then from between the rollers came a sheet of paper. For a moment I looked at it without reading. Now that the longed-for result was at last achieved, I feared to test it lest there be some defect. Finally I raised the paper to the level of my eyes. On it were two lines of type. They read:

"There is a leakage of current in the television motor feed wire. Please remedy it."

CHAPTER IV

Hostilities Begin

I HAVE chronicled in their order the progressive events leading up to the completion of the Infinite Brain, with the hope that they will present a fairly clear narrative of what has happened. I have set down my understanding of the workings of Des Roubles' mind mechanism in the order in which I learned them. But what follows now needs an explanation. Part of it I reasoned out while the terrible events were going on; the rest was supplied much later by another agency. However, the fact was that Anton had made a dreadful mistake, not in his theory or construction, but in the psychological formulae he used. As I have said before, the new mechanism did not comprise an "Infinite Mind," but only a super-reasoning unit, coupled to Anton's memory store. Anton's theory was that this arrangement

would produce a brain very near the ideal Infinite. Perhaps it did come near, but in a far different and more terrible way than anyone could dream of. But I digress. I am here presenting a narrative, not a treatise.

The first few minutes of the new brain's existence were altogether amazing to me, perhaps because the messages were so different from what I expected. The Infinite Brain behaved in what an average man would call a perfectly rational manner. Its first sentence might serve as an example of the tenor in which all its communications were made for the first day.

After I had recovered from my surprise enough to make the repair the thing had told me of, I typed a question.

"Do you understand what and who you are?"

The answer came immediately: *"Most certainly. I understand quite completely everything that has happened. You have no cause for explanations."*

After a pause a second sheet appeared. *"I suggest that you retire for the night in order to give me time to synchronize my centralizing units. I shall then be better able to communicate with you. Good-night."*

Of course, I was in no mood to close the conversation and I told the thing so. But the only result was that the little metal cart rolled up and its two larger arms seized me and impelled me through the door into the living room. Upon my attempt to re-enter the laboratory, I found the door locked. It was a very unpleasant experience and gave me my first premonition that all was not going to be well. However, I decided that, rather than run the risk of angering the thing, or the worse risk of injuring the apparatus through any violence, I would let matters go until morning. So I turned in—strange to say—to a sound, though not dreamless, sleep.

I WAS awakened next morning at 9 a.m. by a violent shaking of the bed. A moment later, while I was still trying to collect my thoughts, all the bed clothes were yanked off and I was dragged to the floor. Still only half awake, I looked up and found the pipe metal frame, that was the creature's body, beside my bed, while his two long arms proceeded to throw my bed clothing over the chair's back.

The action of this thing was enough to bring me to my senses. As I rose to my feet, I noted that the Traveler, as Anton called the body, was changed. The machinery inside was enclosed by sheet metal plates, evidently taken from Anton's storeroom. Also the very fact that It was here in the living room showed that the cable had been lengthened.

As I gained my feet I reached for the keyboard to type a question. To my surprise it was not there! Where it had been was a square of copper screen. As I stared at this I was suddenly given a terrible scare. From out of the depths of the mechanism came a voice! It was pitched like a woman's and spoke in accents which might have belonged to some person of cultivation.

"Good morning," it said. "It is nine o'clock. You might have breakfast and then return to the laboratory."

As the liquid voice ceased, the four lesser arms came forward, each one holding some part of my clothing. I was greatly surprised at the voice, but, remembering the occurrences of last night, I refrained from asking any questions until I was through dressing. Then, guessing what was behind the screen, I leaned close to it and spoke.

"Do you wish me to bring anything back?"

I had guessed aright. There was a microphone behind the screen for the voice immediately answered: "Yes, an atlas."

By 9:30 I had purchased the required book, eaten breakfast, and returned to the apartment. On the way back the explanation of the changes came to me.

The "Mind" had evidently been busy all night, drawing freely upon Anton's plentifully-stocked laboratory for its materials. I wondered how it managed the voice; if I were blindfolded I should never think it was mechanical. Anyway, I should soon be told.

When I entered the apartment, the Traveler was in the laboratory, working on something, for I heard a clatter of hammering. This activity at once ceased, however, and the car rolled in silently to meet me.

A Prisoner

AS I took off my coat one of its many jointed arms took it and placed it over a chair. Then that liquid, musical voice spoke:

"You have the atlas? . . . .Thank you." . . . This, as I gave it to the arm. Then . . .

"If you will sit down, I will give you an opportunity to ask questions."

This seemed rather patronizing. But I did as I was told, whereupon the Traveler advanced until it was directly before me. Then I put my first question, one which I had carefully thought out beforehand.

"What sort of consciousness do you have? Have you any memory beyond the few days of your existence?"

"Certainly," came the voice. "You yourself connected Anton's memory units to my cerebrum. I remember everything Anton ever knew, but as the life of a different person, not my own."

"When Anton and I built you," said I, "we thought we were making a super-mind, which could work great wonders. So far I cannot note much difference between you and any other living human."

"Appearances are often deceiving," said the voice.

I noted that this marvelous voice mechanism could register expression as well as perfect tonal quality. In these words I felt sarcasm.

"As a reminder," it continued, "you seem to forget that in the perfection of this voice apparatus, I have accomplished something which even your ingenious Anton could not do. I am much mistaken if I shall not give you cause to change your estimate—"

The voice stopped suddenly—so suddenly that I thought some mechanism had gone wrong. Later I was to know better.

After a moment the tones began again. They were faster, and talked upon an altogether different subject.

"I believe that you are interested in the methods I employ in attaining the vocal results you hear. It is quite simple. I get a constant tone from a violin string, which tone I pass through one or more of those hollow vessels known as Helmholtz Resonators. As you know, the human mouth, in order to utter the various vocal sounds, assumes different shapes which absolutely control the utterances, the vocal cords producing only a carrying tone. Your early experimenters in this line tried to build a flexible rubber mouth, but this was unsuccessful. The problem is made quite easy by using a set of Helmholtz Resonators—one for each vowel tone and others for the consonants and connecting tones. When these are used with baffle-plates, fans for a tremolo effect, and valves, they make an almost perfect reproduction of the human voice. I use a violin string for each resonator, which is touched by a metal fork set in vibration by an electromagnet. The ear into which you speak consists of a microphone connected to a number of speakers, which, through a similar set of resonators, divide the vocal inflections into their components, the simplest tones. These are then distributed to the auditory section of my secondary reactional reflex unit, from

which—"

The voice stopped, then added: "A detailed explanation of this would take some time, which I have not to spare. You may ask one more question."

To use the conventional term, I felt rather "put out" at this high-handed manner of treating me. I felt righteous indignation at being thus ungratefully spoken to—I, who had partly built him. However, I asked my allotted question:

"At what were you working when I came in?"

"At something which you could not understand," came the answer.

"Explain yourself." I began to lose my temper.

"I reserve the privilege of refusing you," said the voice.

"Well! I reserve the privilege of going to see for myself," I said, now thoroughly aroused. I started for the laboratory door, but the Traveler immediately barred my way.

"Let me through!" I cried.

"Leave this apartment!" ordered the voice, in the same level, liquid tones.

I BECAME enraged. Striding to the door I turned and cried: "Very well, and before I come back, I will have the current supply turned off here, so that you cannot interfere any more!"

The instant I had said that, I verily wished I had choked before I ever uttered it. The Traveler left its position by the laboratory door and rushed at me with terrific speed, extending its two terrible metal arms. I tore frantically at the door knob, but it stuck for a second, which was all that was necessary for the Traveler to reach me and capture me completely in its powerful steel grip!

I STRUGGLED wildly for a moment, then relaxed. "Well?" I said, striving to be calm.

"Silence," said the voice of music, in a tone slightly tinged with sarcasm, "is golden. Consider this experience as a lesson—as I shall."

Holding me well above the floor, the Traveler backed to the couch. There I was laid down, still breathing hard from my struggle. I strove to appear as unhurried and tranquil as the mechanism before me. I fear, though, that I did not accomplish much. Finally I got my breath. Fixing the twin lenses with my eye—a rather difficult feat owing to their distance apart—I spoke in a stern voice.

"What is the meaning of this outrage? Seizing me like this? Of all the ingratitude!"

"Fortunately," replied the Infinite Brain, "Anton did not trouble to install emotional reflexes in me. I can do quite well without gratitude."

"Well, then," I replied, "if you haven't any decent feelings in your tin can make up, you can at least wish to keep alive. But you shan't after the first of the month, when, if the light bills are not paid, the current will be turned off."

I considered this a checkmate, and was beginning to pride myself on beating this super-brain at its own game, when the voice replied, with perfect tranquillity:

"I foresaw that, which is one of the reasons I kept you. A few days before the first day of next month you will write a check to the power company, which I will mail in the chute on this floor."

The Brain's Maneuver

AT that, and without another word, the Traveler, holding me with one arm, proceeded to rip up parts of the rug and tie me up so firmly that I was wrapped in a veritable bag of rope. During this procedure, I kept up a continuous flow of talk, explaining to this monster all the reasons conceivable why I should not be treated so. However, all this got me was a gag over my mouth.

As soon as I was tied to its complete satisfaction, the Traveler went calmly back into the laboratory where it began the hammering again. After a little tugging, I decided that my bonds were fool proof. Then I fell to wondering what was going on in the laboratory. Now and then a motor hummed and a continuous clatter and tapping could be heard above the noise of the Mind-machine. It made me very angry to think of such free use being made of Anton's and my apparatus and tools. Also I wondered if the new Mind was dismantling the three remaining units of Anton's brain. This and other similar reflections served only to feed my ire until I felt quite ready to do anything to this disturber of my peace. I cursed myself for adhering so strictly to the secrecy imposed upon me by Anton. If only I had told some friends what I was doing I would soon be free, but as it was, no one would come near the apartment for weeks, if the bills were all promptly paid.

The thought of this gave me some hope. I might leave out some particular bill which would be sure to bring collectors if not paid. Then, too, it was a long way to the mail chutes—which were right beside the elevator—and even with a long enough cable, I doubted if such a big and noisy object as the Traveler could get there and back without attracting attention.

These hopes and conjectures kept my spirits buoyed up for about two hours, when a new thought came to trouble me. This originated in my stomach. It was quite near supper time, yet the Traveler had not even appeared at the laboratory door, which was ajar. I wondered if the creature, needing no food itself, would think that I needed nourishment. For about a half hour my mind dwelt upon these thoughts while my spirits fell lower and lower, till suddenly the Traveler came sailing into view at the laboratory door.

Here on a stand was a telephone and this the Traveler picked up. In a moment that liquid feminine voice spoke: "Please send up a tray with dinner to Apartment 931. Thank you." Hanging up, the Traveler approached the couch, picked me up and carefully tucked me inside the bed clothes. Then it backed a few feet to one side of my bed. In a soft voice it said: "When your food comes, tell the waiter to enter. Remember you have a bad headache from overwork and decided to spend the afternoon in bed. I shall remain right here. If the waiter speaks of me, explain that I am a machine you are working on—otherwise I shall be compelled to take the waiter prisoner and refrain from giving you your supper."

I glared at the lenses in silence. After a moment there sounded a knock on the door and the waiter came in. "Put it on the table," I said in a weak voice. "I don't feel at all myself this evening."

I watched his retreating figure with the impression that he carried out all the lingering remnants of my hope with him.

The Traveler watched me all the time I was eating, possibly suspecting my intentions to hide away a knife to cut my bonds. When I had finished, three of the arms came forward and carried my tray to the door where it set it just outside. Then carefully locking the door, it went back to the laboratory.

CHAPTER V

Help!

THE coming of night did not in the least affect the actions of the Mechanical Brain. Lights were turned on in the laboratory, and the hammering, grinding and sawing continued with only short interruptions

throughout the night. I became very curious as to what was going on to make him so secretive. It seemed odd that on the very first day of his existence this weird creature should become engaged in some deep and mysterious task. These thoughts led me to wonder what my friends would think if they should know in what a situation I was. Kept a prisoner by a machine I had partly built! What would Mr. Turrill, my ex-employer, say to it? Or Harry Blanchard, my roommate before I came to live in Anton's apartment?

The thought of Harry gave me renewed hope. He was in the habit of calling me up every few days, to see how I was, and also in the hope of finding out what I was doing—for I had told him nothing. I wondered how the Infinite Brain would explain why they shouldn't come to see me. And what Harry would say to hear a woman's voice answering my phone!

These reflections, which occurred on the morning of my second day as a prisoner, were interrupted by the appearance of the Traveler at the telephone. This time he called a well known foundry and machine supply house, and put in several orders in a tone too low for me to hear. After hanging up, the Traveler came in and ordered me to write a note for the delivery man explaining that I was out, but that he should leave the things in the living room. This I did, after being threatened with pinching. Thereupon I was bundled, unceremoniously, into the closet while the Traveler retreated to the laboratory.

After some time a delivery man came and left some heavy-sounding bundles. I struggled desperately, but to no avail. A few minutes after he left I was released—but of the packages not a trace remained. The Traveler had carried them all into the laboratory.

After this event, perhaps a half-hour passed, when suddenly the telephone rang. I thought the Brain would not answer, but it did. As it spoke, my heart leaped with joy.

"I am very sorry, but Mr. Lawrence is not well and cannot speak to you. I am the trained nurse. Whom shall I say? Mr. Harry Blanchard? Yes, I'll tell him. Good-by."

Hanging up, the Traveler went back to its work. However, a great hope surged within me. For I knew what Harry would do. He would come straight up to see me. In that case— My reflections merged into a happy chaos of rosy hope.

I anxiously counted the minutes from that time on. The Traveler kept busy in the laboratory—a fact I was glad of, for I feared that a glimpse of my face would tell him everything. However, he—I continued to call IT "he" in spite of the feminine voice—never even appeared and after a half hour of waiting there came a knocking on the door.

THE sounds of activity in the laboratory ceased. With bulging eyes, I watched the Traveler come swiftly into the room. Without a word he threw me under the bed covers, covering my bonds. Then, retreating near the foot of the bed, he said in a low voice, "Tell him to come in—remember what to say."

"Come in," I called weakly. The door opened and Harry Blanchard, a rosy complexioned cheery fellow, more than six feet in height, entered. "Well, well, Gene! What are you doing lazing around on a day like this? Where is the nurse? Her voice sounded swell over the—"

He stopped, catching sight of the Traveler. Then—

"Why, what in the world is this?" He walked up to it and wiggled one of the arms. "Looks as if it were everything but alive," he said. "What a horrible-looking thing. Those lenses, just like two eyes—UGH!" He backed away and then turned cheerily to me. "Too bad about your getting sick like this. How long has it been?"

"About three days," I answered, looking at the Traveler. "Won't you sit down?"

He did so, and on the edge of the bed. His broad shoulders hid my face from the two lenses. Now, I thought, was my chance. I must tell Harry to bring help and have him get away without the Brain knowing it. Steadying my nerves with an effort, I said, "Say, Harry, will you do me a favor? There's something in my eye and I can't get it out without help. My nurse has gone out for lunch—"

"Certainly," said Harry. He leaned towards me, drawing out his handkerchief. The instant his face was near mine I began to whisper tensely: "Harry—don't look around for God's sake—my very life is in danger. No—keep on at my eye. We are being watched this instant— Don't move—go—go and get some help—have the electricity turned off—that machine—"

I stifled a scream—out of the corner of my eye I saw the Traveler moving silently towards us. Harry saw the frightened look in my eyes and turned around. Then he leaped to his feet. He must have understood at once, for he started for the door. But he had no chance. Relentlessly that terrible metal car bore down upon him and the steel tentacles seized him in their pitiless embrace.

Harry was much stronger than I and he struggled powerfully, silently, but the iron muscles of the Traveler were too much for him, and he began to weaken. Seeing his plight, I cried to him— "Harry! Call out! Yell—or you are gone!"

With a look of horror in my direction he shouted at the top of his voice. "Help! Help! . . ."

The tentacles stifled him for a moment—then, tearing himself free, he cried out again. I added my voice to his and at the same time tore at my bonds, throwing myself from the bed in the process. Suddenly Harry stopped struggling and his body became limp. A short arm arose and tossed a heavy chair leg to the floor. Then, dropping my friend's unconscious form to the floor, the Traveler, waving his now blood-stained arm, started at me. I realized what he was intending. No longer desire to capture me was in that awful Brain—it was death! Poising above me, the two larger arms with outstretched fingers arose. Beating out with my free arm, I rolled sideways—when suddenly there sounded a loud knocking at the door. The Traveler stopped as if paralyzed. I screamed out for the last time— "Help! Killing—" Then a stunning crack sounded in my ears, mingled with the sound of splintering wood, as the door smashed in—and blackness descended upon me.

While the World Waits

I WAS unconscious, I was later told, for more than six days. The very fact that I was not killed was a miracle, the doctors said. But, as it was, I lived to endure even more awful manifestations of the Brain's power.

When my eyes had opened to the light of day, I found myself lying in a white hospital bed, in what looked like a field hospital during the war in France. To right and left were rows of similar cots, each one bearing a bandaged patient. White-clad nurses and doctors flitted about, and an air of excitement filled the entire place. I hardly had time to glance about when a doctor espied my open eyes and came to me. His manner was brisk and genial, with a sort of assumed cheerfulness, it seemed to me.

"Feel all right?" he said. "You had a bad cut, but no fractures—just a scalp wound. How is your memory?"

I moved my head slowly, discovering that it was swathed in bandages. "Memory—it's—quite—all right." For a moment I tried to think what had happened, and then with a sudden clearness it came back to me. Oddly enough my first

thought was of Harry.

"Is Mr. Blanchard all right?" The doctor nodded. "Just scratched up a little and knocked cold. He has been up for the last four days."

I looked about me. The ward I was in seemed to be a rather make-shift affair; it was a wood and screen frame, covered with canvas.

"What's happened—why am I here?" I asked.

"Now you've talked altogether too long already," said the physician. "You must rest and grow strong. Excitement will be the very worst thing in the world for you." As he said this a nurse came up and gave me a glass of hot milk. Shortly after I went to sleep.

For almost a week after that I remained in the tent hospital, in ignorance of what had happened. That the whole thing concerned the Brain I had no doubt; but how, I could not guess. When, on the fourth day, I was permitted to sit up, I discovered that the tent was one of several scattered over a gently sloping meadow of grass and flowers. A graveled road ran by a hundred yards from the tent I was in, and over it passed an almost constant stream of big tan and gray motor trucks. Men in uniform, evidently Army officers, white-clad nurses, many officious-looking civilians, as well as patients went constantly to and fro between the tents. I had almost to pinch myself not to think I was in a hospital camp during some war.

I was given food every day, and grew steadily stronger, as did my curiosity. Finally on the seventh day, the doctor came on his usual visit, accompanied by an Army officer, whom I recognized at once as Gen. Long, Commander-in-Chief of the U. S. Army. Greatly puzzled and amazed, I waited for what they would say.

THE doctor began. "Mr. Lawrence," he said, "I suppose you have wondered a lot as to what is going on here, but as wondering has done you no harm while knowledge would, we have not told you a thing. The truth of the matter is, you are of altogether too much value to the country—indeed, to the entire world—to permit any chance of a relapse. In fact, we have reason to believe that you alone can save the world."

As he paused, I looked from one to the other. Finally Gen. Long broke the silence. "Perhaps if we tell Mr. Lawrence what has happened, he will know better where to begin."

"Yes, yes, to be sure," said the doctor. "You tell him, General."

"Well," began Gen. Long, "I should tell you first that you owe your life to the promptness of the manager of your apartment-house and three people he was showing around. These four, all of them men, heard your cries, and one of them seized a chair and smashed in the door. What they found inside, is, I suppose, well-known to you. The Thing there attacked the four of them, but the manager smashed the upper part of it with his chair, and they managed to escape with you and your friend while It was stunned.

"They at once ran downstairs and summoned the police, but they had hardly done so when there was a fearful explosion in the upper part of the building, which brought a whole wall to the ground. Police and firemen ascended to the ninth floor by means of scaling ladders, but they were blasted from their positions by some fearful force, many times worse than the most powerful explosive. A moment or so later a little object like a searchlight projected downward from the window and sent a streak of pale, purple light into the street. Wherever it touched there occurred mighty explosions.

"Before this, however, you and Mr. Blanchard were sent away in an ambulance. The promptness with which this was done alone saved your lives, for the first explosion wiped out the fire trucks, several hundred people, and reduced the building across the street to dust.

"Later the beam moved across the sky, demolishing every building top within a radius of twenty miles. No one yet knows how many lives were lost, but it is estimated at over two hundred thousand."

"I Helped to Build Him"

"THE whole city escaped death only because the ray, after one sweep of the city, did not appear again. All through the night people fled from the city. You were taken to Bellevue Hospital to receive surgical treatment, and then carried across the Hudson River. Every boat that could float was called into use. Before daylight there were scarcely a thousand people left in the Metropolitan area, and these were the police and militia.

"As soon as daylight came the ray appeared again, and leveled every structure within a three-block radius of your apartment building. Several hundred militiamen, who had crept up near the apartment during the night, were killed.

"After several disastrous attempts to storm the apartment, the besiegers retreated across the river. A day later seven 75 mm. guns began shelling the building, but the ray came on at once and, leaping the eight miles to the guns, destroyed them. Other attempts towards shelling always ended the same way. Airplanes were blasted to smoke in mid air, and during the first day every bridge leading to Manhattan was destroyed. To show how vigilant the Intelligence was—a launch moving in the Lower Bay was destroyed in the dusk of the first day more than thirty miles from the source of the ray.

"For five days anyone daring to make a movement within twenty miles of the ray was instantly destroyed. Buildings in Yonkers and White Plains were scorched.

"Then, on the day before you awakened—the sixth—Army officers, using a powerful telescope from the hills beyond the Palisades, saw what looked like a big metallic man, more than fifty feet tall, walking across Central Park. Guns were fired at him, but evidently the creature at the ray was still busy, for the destruction beam moved up the line of the Palisades, destroying all the trees and blasting off enormous masses of rock. On the seventh day, nothing was seen of the Thing. During the eighth and ninth days artillerymen were busy installing long-range guns at Tarrytown and Ossining. On the tenth, smoke was seen arising from the Navy Yard shops at Brooklyn, and the metal man was again seen carrying some heavy burden across the park. During the eleventh day the guns got their range, and yesterday—the twelfth—they completely destroyed the apartment. Immediately afterwards troops and Navy launches started across the Hudson River. But without any warning the ray suddenly shot out from the roof of a building at the Battery, and wiped out every launch.

"So, you see, we evidently have not yet managed to destroy the Thing that is causing all this havoc. At first we placed some credence in what young Blanchard told us about a Mechanical Man, but of course, we know now that it is some radical organization with some new invention—"

At this point I broke in on the General's discourse.

"No, Harry is right. It is no human agency; it is a mechanical man—or rather, a superman. I know, for I helped build him!"

CHAPTER VI

Waiting For Midnight

IT took the greater part of the day, the thirteenth after my escape, to explain to Gen. Long and his staff the details of the part I had played in this cataclysm.

Their half-hearted belief gave place to conviction before the somewhat feverish eloquence I used to describe the past events. Later in the afternoon—after Gen. Long had gone—Harry, his head still bandaged, came to see me.

He told me practically the same things that Gen. Long had narrated, but from a more personal viewpoint: the rush and terror in the city; the agony of thousands pinned under fallen buildings in the streets; the frantic haste at Bellevue Hospital; the crowded boats flying across the Hudson River to safety; the accidents there; and lastly, the constructions of tent hospitals for the injured who were picked up by thousands from Newark, Jersey City and the river.

I listened to all this with a rather impersonal interest. I had seen nothing of the terror, and it seemed so peaceful and sunny here that I could hardly believe the Infinite Brain was not simply a bad dream.

However, at the end of a half hour's talk with Harry the doctor made him go away, as I was by no means well yet, and I was put to sleep in the usual way—by drugged milk.

For a whole week I remained in bed, and then took to a wheel chair. The doctor said that in ten days I should be well again and meanwhile I was to take it easy. This I did, devouring the back numbers of newspapers dealing with the menace.

Harry came every day to give me the news, which seldom varied much. All attempts at crossing the river met with the invariable repulse. The strange metal man had not been seen again, but smoke continued to ascend from the Navy Yard shops in Brooklyn. There was a sort of lull between periods of excitement. Troops and guns had been ferried over to the north end of Long Island, and were creeping down towards Brooklyn. A number of submarines investigating around the Navy Yard found nothing but a sudden warm reception by another violet ray.

And so the sunny August days passed one by one over a feverishly busy and excited world, and over my head with its lessening load of bandages.

It was on the twenty-ninth day that the storm finally broke. Stoves had already been installed in the tent hospitals, and the cold and colors of autumn filled the air. It was also the day before I was to be released, and my head was burdened only by adhesive tape. Let me tell just how it happened.

As the gorgeous colors of a sunset in Indian summer slowly gave way to the darker shades of night, Harry and I, warmly wrapped in overcoats, ascended the road to a ridge overlooking the city from a distance of some twenty miles. I remember well how dark and desolate the empty metropolis looked in comparison to the lighted warmth and cheer of the tent city behind us. A chill wind moaned through the trees on the hill and added to the general dismalness of the scene. The wooded slopes before us looked empty, but we knew well that they were not. Down there in the darkness more than ten thousand men were at work preparing for the great offensive which was to begin at midnight.

DURING the week the Army on Long Island, under General McArthur, had been creeping nearer its objective, which was Brooklyn. Weird things had been seen there at night by spies perched on roofs at a distance. During the dark hours between midnight and dawn, huge shadowy figures had moved about the Navy Yard shops and occasional sparks had leapt past the mufflers on the furnace chimneys. The sound of dragging metal and its heavy dull clanking could be heard on calm nights, and a peculiar yellow powdery ash covered the roofs of many buildings near the Yard. By day men with telescopes could see numbers of yellowish, metallic bars lying in the ship's ways, and the battleships in dry dock were seen to have been partly wrecked, large slabs of armor plate having been taken from their sides.

Engineers could make nothing of what was going on. That one or several mechanisms of vast size were being made was all they could state. What they would be like, or do, none could guess. But the Army was not to be caught napping. Guns had been planted at strategic positions all along the Jersey side of the river; ammunition depots had been established and men placed in readiness to receive the metal man and his machines, when they should flee from General McArthur's army. That they would flee before our troops was considered certain, but of this I entertained grave doubts.

However, tonight was a decisive time. Harry and I, squatting at the foot of a huge oak tree, waited silently for midnight. The hours passed slowly and we saw only one man—an officer—who demanded our permits to be here. He stayed and talked for ten minutes or so, and then was gone to his battery.

It was a misty night and the moon, which was on the wane, showed itself only at intervals through the wind-blown clouds. We glanced often at our radium-dial watches, and watched the hour hand slowly creep around past ten, ten-thirty, eleven, eleven-thirty, eleven-fifty, eleven-fifty-five—

We arose and peered across the darkness towards the city. In five minutes—

Then it came! At eleven fifty-eight exactly came a half dozen broken flashes, followed almost a minute and a half later by the deep roll of cannon. The bombardment continued for exactly four minutes. Then at 12:02 a.m. there was a sudden, dazzling, violet glare which flickered back and forth, turning everything it touched to fire. Then—silence. Heavy clouds covered the moon, and a few rare chill raindrops fell to the rustling forest. It was all over so quickly, so silently, that we scarcely knew what had happened.

Thousands of men in the dark forests below us stood at their weapons of death for hour after hour waiting in vain for the metal monsters to come. But nothing happened; and when the cold gray dawn of a fall day came, we learned how after one salvo of their cannon, General McArthur and his entire army had died out there under the cold flickering moonlight.

In the Night

IT was in the dawn of the thirtieth day that the terror began. News of the destruction of McArthur's army at Brooklyn traveled like lightning throughout the world. Thirty thousand men, led by one of the world's ablest Generals and supported by the very latest inventions of warfare, had died—all in a bare ten seconds, without having had the slightest chance to defend themselves. No one has ever learned just what happened there on Long Island, for there were no survivors.

The effect of the news was like a drug. The armies closing like a net about New York dropped back. A fleet of mighty dreadnaughts, coming from Great Britain to lend aid, turned back in mid-ocean. People fled from cities as far away as Boston and Philadelphia.

The thirtieth day was cold and dreary, with frequent showers and a biting raw wind. An air of depression hung over the entire encampment, and those inside sat still for the most part, listening to the steady patter of rain on the canvas roofs.

General Long and a number of officers and men went to the edge of the Palisades during the afternoon to recon-

noiter, but they soon came back wet and discouraged to sip hot coffee disconsolately in the big hospital tent.

As most of the patients were able to walk now, it was decided to break camp on the morrow, and move west to Pittsburgh or Buffalo. General Long and his staff left at nightfall in autos for Washington, where an international conference was to be held. As night fell many soldiers came up in the woods for hot coffee and soup, and all talked of the same thing—the wetness, the cold and the bleak silence from the city. Some thought that the bad weather would keep the mechanical creatures under cover, but the majority were too tired and discouraged to care.

Doctors and nurses were busy packing for the move, which was to take place at daybreak, when we were startled by a loud hissing sound. It came from above, and we thought at first that it was an airplane with its motor shut off. Stepping outside, I peered up in the dark rain clouds. And then I saw It!

It was like a huge spindle, perhaps two score feet long and with two great insect-like wings at each end. These wings tipped and warped as the thing flew, and along its slender body many perforated discs spun, producing a whirring hiss. The thing was gone in a second. It just swung into view, flashed past above us—and was hidden again in the mists. And with its going the night closed in with the monotonous drip of rain.

With the passing of the flying machine, a terror set in at the camp. All lights were extinguished and we sat shivering around the stoves, praying for dawn and jumping at every sound.

Quite late in the night, a messenger arrived by motorcycle from Gen. Lowe at Oyster Bay, Long Island. He stated that an aircraft, evidently belonging to the mechanical creature's camp, had passed over his head, destroying several large buildings with its violet ray. Lowe also advised everyone to go further inland, "until," said he, "we either destroy these fiendish invaders, or compel them to surrender."

POOR Gen. Lowe! Attempting to put courage into his allies, even while he and his little five thousand were hiding in fear of their lives at Oyster Bay, expecting to be found by the terrible flying machine any moment! It was the last message ever received from him, for some time between midnight and dawn the airship found him and burned his little force to cinders with the violet ray.

Shortly after the messenger arrived, and while the inhabitants of the hospital camp were still only partly out of their coma, the sharp penetrating hiss of the airship was heard again above the drip of the rain and the moan of the wind. Every one leapt to his feet and those near the doors fled into the mud and rain. Harry and I, holding to each other, to prevent being lost in the dark, stumbled out of the tent. We looked upward but saw nothing. The hissing which had come from the city now paused directly above the camp, as though the airship were hovering there. I suddenly felt there was imminent danger in staying here with these frightened people clustered together for mutual support. I sensed that their excited whispering and chirrupping was heard by the unseen Intelligence above. Grasping Harry by the arm I started away, at a stumbling run. Then suddenly it came—the violet ray! A sudden snapping sound, and a ghostly, yet brilliant beam of electric violet leaped to the ground. By its light I distinctly saw what happened. First it touched the muddy road in front of the hospital tent. With a roar like thunder the mire leaped skyward. Great billowing clouds of steam swirled through the air. From the crowd of people there came a scream of terror to be quickly snuffed out as the deadly ray moved to one side. With a series of soft "plops" the big tents ignited and after a momentary flare burned out into darkness. Then with an audible click the ray vanished and the hissing ceased.

Harry and I stood motionless in sheer horror. Then we slowly advanced to where the camp had been. Passing through clouds of dense steam we suddenly found ourselves on an area of hard baked clay, lined with cracks and tough as concrete. Steam came from the wide cracks, and we could feel the heat through our heavy-soled shoes. Stumbling onward we suddenly waded into a space covered with fine ash, perhaps three inches deep. I drew back, involuntarily, for I knew this was not wood ash—no tents had stood here.

TURNING back, Harry and I proceeded, with what speed we could make, down the hill, through the dripping forests to the gun encampments. After some searching, we came upon a 75 mm. gun, with its crew of five and a corporal huddled about their piece. As we came out of the murk the corporal sprang forward excitedly asking what had happened up at the hospital camp. We told him and then went quickly on down hill. Somewhere around here was Col. Windham's quarters. Col. Windham was in command of the batteries on the hill, now that Gen. Long was [redacted].

However, we never found Col. Windham, and, passing two more disconsolate batteries, we came upon railroad tracks. Across these we could dimly make out the oily waters of the Hudson River. As we stopped, wondering where to go, Harry gripped my arm.

"Gene!" he said, "there are lots of small boats here—left by refugees from the city. Let's get one—go to the Navy Yard and get that metal beast! Are you with me?"

Without a moment's thought I answered, "To the end!"

However, even much thought would not have changed my decision. We were the only people in the world, having any sort of an idea of what would be encountered at the Navy Yard. We were the only people who could possibly save the world.

It took very little searching to locate a boat. Along the shore, drifting with the current or floating overturned, was a veritable fleet of small craft, deserted by the city dwellers in their mad rush westward to safety. We could have our choice from a sixty-foot yacht to a leaky flat-bottomed punt. We finally chose a seventeen-foot yawl which would move in silence—a virtue which motor craft did not possess.

We climbed aboard and pushed out into the stream. There was a heavy fog over the river, for which we were glad. Looking at my watch, I found it was a quarter past eleven.

Once we had started, what little remained of the shore vanished from our sight, and Harry, who was more of a yachtsman than I, steered a slanting course towards the Battery. For perhaps an hour we went on, a strong wind from the north raising little whitecaps on the river. A curl of foam came from the bow and a faintly phosphorescent wake was visible a few yards astern.

Somewhere around half-past twelve we heard the sound of water washing against stone, and a few moments later we saw a high stone and concrete sea wall projecting above our heads.

Harry said it was probably the Battery, but a moment later we made out the dim form of a vast human figure rising in the mists above us. For a moment we thought it was one of the iron men seen in the city, but in a second we saw our error. We had landed at Bedloe's Island, and it was the Statue of Liberty that loomed above us.

Harry and I had a good laugh at this, so great was our

relief. Then as we still had many miles to go, we set sail again across the bay towards the Navy Yard.

The bay was much rougher than the Hudson River, and I was kept busy bailing water most of the time. At two o'clock we heard the waves swishing through the piling of some Brooklyn dock, and Harry went ashore to see where we were. He soon came back, saying we had more than a mile to go yet.

Taking off again, we coasted down past long ghostly files of piers, where the waves washed with a sobbing sound. It was low tide and the docks rose upon stilts, high above our little boat, so we saw nothing of the city. One thing alone remains burned in my memory. As we passed along close by one of the long pier ends, the boat struck something soft. Looking over the side I saw a dead human face staring up at me through the water. It was a terrible shock, and after that I avoided looking into the water washing among the piles.

Finally, after what seemed an eternity, the yawl passed a stretch of concrete quay and entered an area of smooth water. Here tall buildings shut out the wind, allowing only a gentle misty rain fall.

Lowering the sail, Harry and I rowed the craft slowly to a flight of stone steps where we tied her painter to an iron ring. Then we carefully began to ascend to the dock level.

I wondered vaguely as we climbed how this would end. Would we go back to life again or would we be caught by the ever-watchful violet ray and burned to dust? In my mind's eye I pictured all sorts of terrible metallic monsters lurking in the shadows. I knew what these would be: radio-controlled machines, all of them merely limbs of a single Brain. It was that Brain that we must find. It alone must be destroyed, if we were to save the World.

At the top of the stairs we hesitated, wondering which way to turn, when we heard above the dimmed sound of the wind the slow heavy tread of approaching footsteps—titan footsteps which made the pier quiver with each step.

CHAPTER VII

The Airship

AS Harry and I crouched in the depression formed by the top of the stairs, the great muffled tread came closer, and out of the fog and rain there appeared such a monster as I never hope to see again in this life.

It was fully thirty feet tall and strode more than fifteen feet at a step. Its tall cylindrical body was supported on three long slender legs, radiating from a round drum at the base of the body. It walked with a rolling motion, the legs revolving with each step.

And the body! It was shaped like a round, fat barrel, eight feet high and the same through. At the top was a flat ring containing many small round holes, out of each of which there projected a twenty foot length of jointed metal bars, articulated by flexible cables. They were partly curled up and swung as the thing walked, as though balancing. Surmounting these tentacles was a round stand, perhaps as big as a lamp-post and bearing at its top four big round lenses. As it walked they moved, surveying the pier rapidly.

Harry and I ducked down on the stairs, and waited with fast-beating hearts until the thing had vanished again in the murk. Then Harry breathed a sigh of relief.

"Gad! What a nightmare!" We rose again and scuttled like rats for the shelter of the building.

Waiting a moment, listening for any sound of the monster's return, we hurried on towards the machine-shops. After a hundred yards the dark form of a battleship appeared on our right—one from which the armor-plate had been stripped. Passing this we skirted the edge of another dry dock—one strangely changed, for great steel girders stretched across it made a rough open frame, upon which some object might lie. I thought at once of the flying machine—and we hurried on.

Harry, who had been here several times, finally located the big shed housing the shops and we now approached more cautiously. . . . In the distance I heard the massive tread of the steel monster approach and recede. . . . We were now fairly under the eaves of the shops. Crouching near the wall, we crept forward, fearful lest our loudly beating hearts should betray our presence to some lurking creature. Suddenly we came to the big doors. One of them was open, and I carefully stuck my head in. All within was silent. Black shadows filled every bit of the interior.

Suddenly Harry gripped my arm. "Come back," he whispered. "Your head—makes a silhouette—against the lighter outdoors."

Shivering, I drew back. We started back and then flattened ourselves against the wall. A penetrating hiss, steadily increasing in volume was borne to our ears by the wind. The airship was returning! We waited many minutes while the threatening sound of the flying machine approached. I wondered if there would be a light—if—

THE sky darkened and, looking up, I beheld a double-winged form of the airship hovering overhead. Then as I watched, it lowered until it came to rest on the framework over the dry dock. For many minutes we watched it, expecting some creature to come out, but none came. Then I had a thought. Bending over I began to whisper to Harry.

"That airship—just another radio-controlled creature. Nothing inside it except—machinery. Wait a few minutes and maybe the Brain will turn off his control, and then we can go to it—and direct the violet ray against these buildings!"

Harry held my arm for a second and then we began a creeping advance on the dry dock with its weird burden. It took us some ten minutes to retrace our steps to the dry dock, so slowly did we go. I remembered looking at my watch and seeing it was 2:30. Then—

We gained the edge of the deep pit, now empty of water, and creeping to the steel beams upon which the airship lay we started crawling out over the black chasm below.

It did not take long to reach our objective. Our nerves would not permit a long stay on the beams. The airship was not large; certainly much smaller than it had appeared from below. Its body measured some forty feet in length and it was shaped like a flattened spindle, bearing a pair of sixty-foot wings at each end. Along each side of the steel body there was a row of four-foot steel discs, slit and bent in a curious way. These were the originators of the hissing sound. Creeping over one of these, Harry and I gained the front part of the machine where, on the under side, were sixteen great lenses and a barrel-like projection, which I recognised as the source of the violet ray. Harry at once attacked this, trying to bend it, but the thing would not budge, and my friend almost fell through the girders to the bottom of the dry dock. While he was doing this, I searched for some mode of entrance, and soon found it—a big hatchway more than six feet in diameter and fastened with three wing nuts. I called Harry, and we descended together into the hull of the craft. Harry had a box of matches and by the light of one of these we surveyed our surroundings. They were—wonderful!

We stood in a little narrow room, so low that we had to stoop. On each side stood rows of gearing—motors, automatic rheostats, and arrangements of little hands and arms, which were evidently radio-controlled repair-men to remedy

any damages that might be received when away from the base. Further forward I recognized radio tubes, coils electromagnets, more coils—motionless television discs. Astern were two big Diesel engines connected to powerful generators. Forward I saw the automatic controls for the violet ray. Smiling grimly, I started astern to the motors. Here I was in my element. Start the motors, destroy the radio controls and demolish the fiendish Brain with one flash of its own ray! But even as I stepped towards the engines I heard a buzz. The next instant the motors started of themselves. For a moment I could not comprehend what had happened, then—it was too late!

Over Washington!

WITH a screaming hiss, the fans outside started and the ship lunged, tipped and then rose upward with a sickening lurch! Harry and I rushed to the hatch in time to see the shops vanish beneath us. Then the craft picked up speed—the air fairly shrieked past us. I had a faint vision of lights rushing past beneath. Then the craft entered a cloud and a suffocating mist filled the interior.

With a gripping feeling about my heart I turned again to the vehicle's interior. By the light of another match I saw that Harry's face was white and drawn. Then the match flickered and went out. At that moment I caught a dim glow of light from the forward part of the vehicle. It came from the radio tubes. Harry and I walked carefully through the whirling machinery toward them and peered long at the mechanism grouped here. Spinning, whirring television discs; rapid reciprocating shutters and slides, whose purpose we could not even guess at. I marveled that in only a month's time the Brain could assemble such a wonderful thing. Truly a Super-mind!

For perhaps thirty minutes we carefully examined the machinery, making little of what we saw, when our examinations were interrupted by a change in the movements of the airship. It ceased its headlong flight and hovered. The hiss took on a shriller note. Harry pointed to the mechanism of the death ray. It was moving! Little cog wheels were slowly turning and the iron foot of the projector moved until it pointed vertically downward. A pump of some sort began working with great rapidity. Harry suddenly left my side and ran down the hull to the hatch. Then he called back:

"Gene! This is the Capitol. It is Washington! We are over Washington! Over the Capitol Building!"

I tensed myself. A big electric tube was glowing brightly. A switch was slowly closing, pushed by a steel lever! Then I cried— "Hold on," to Harry, and raising my fist above my head, I struck the glowing tube a furious blow. It was immediately extinguished and an electric shock shot up my arm, paralyzing it. Crazed with pain I drove my other fist at the television disc. There was a rending sound and the disc stopped. The airship rocked, twisted, endeavored to right itself. The disc propeller screamed a note of agony, but the great flying machine without its eyes was helpless. I dodged aside as one of the little automatic repair machines came rushing up, and then seizing it I wrenched its delicate arms off, and flung them into the maze of gears. There was a smashing sound of ripping metal and a loud snap. Brilliant electric sparks illuminated the machine like daylight for an instant, and then with a frightful lurch the airship fell.

CHAPTER VIII

The Brain Scores

AT the instant the great flying machine lurched downwards towards the ground, I seized a bar and endeavored to steady myself. I heard Harry yell something, and with a mighty crash the machine struck the earth. I was wrenched from my hold and a deluge of water poured in on me. For a moment I struggled and then came to the surface, where with the help of Harry I climbed to the still open hatchway. Crawling out we found ourselves on the deck of a crumpled airship standing tilted at an angle in shallow water near the south shore of the Potomac River.

Both of the great wings on one side were under water and the nose of the machine was bent upwards where it had struck in the river mud. Little waves washed up the tilted deck and eddied among the motionless metal discs on the sides. Dark trees overhung the wreck, shutting out the dim grays of the coming dawn.

We stood motionless for a moment, accustoming our senses to the strange surroundings and our eyes to the dark. It was perhaps a hundred and fifty feet to shore, but the high bank and the swift current there quickly decided our course.

Sitting down upon the upturned stern of the flying machine, Harry and I proceeded to wait until some passing craft should discover us. We talked little, but both felt that our mission had most certainly not been a failure. The Brain's most dangerous weapon—the airship—was destroyed; the secret of the violet ray was ours, and now we could fight fire with fire!

However, in that we made a great mistake of underestimation. We had yet to see the limits of the Mechanical Brain's resourcefulness. Harry and I had sat upon the tail fin of the machine for perhaps fifteen minutes, when I detected directly beneath my feet a humming and vibrating. At first I attributed it to the current, but its persistence finally made me investigate. Remembering that the stern's upraised portion would prevent the entry of any water, Harry and I hastily went below to see what was happening. As we splashed through the flooded hatch Harry made a remark, which expressed my feelings exactly.

"Gee, I'm getting so I get the heebee-jeebees every time I hear a motor hum."

Crowding past the Diesels near the rear, Harry and I found ourselves before a box-like compartment some four feet square from which the humming proceeded. Somewhat alarmed at this, we opened the unlocked door in one panel and peered in. There we found a number of storage batteries, an electric motor, and a telegraphic radio sender! I caught a glimpse of small wheels going and heard a steady click, click, click. The meaning of this became clear in an instant. It was a device to call for help to the Brain in case of an accident! And then with radio direction finders the flying machine could be located. . . .

Reaching inside the compartment Harry ripped out a handful of small wheels and wires, effectively preventing any continuance of the signals. Then, satisfied, we reascended to the deck and waited.

AN hour elapsed, during which the sky became steadily lighter and a faint flush of pink appeared in the east. The lights of the city of Washington, across the river, dimmed and the sounds of awakening life came faintly over the Potomac to us—the crowing of roosters and barking of dogs. Far down stream a little motor-boat began to put-put up toward us. Harry stripped off his shirt and prepared to wave it when the craft came nearer. Perhaps fifteen minutes passed. Harry and I watched the approaching boat constantly. By this time it was only a half mile away. Then waving the shirt, we both began to halloo at the top of our voices. After a moment we paused and saw that we were heard, for the boat changed its course and headed towards us.

For some five or six minutes it kept steadily pointing to the wreck and then suddenly swerved and started racing away at top speed. The men in it shouted something which we could not understand. Then the tiny craft was gone in a welter of foam. We stood for a moment, speechless with surprise, then Harry gripped my arm convulsively.

"Don't move—listen!" he whispered in great excitement. For a moment I detected only the gurgle of the current, but then I caught a new sound. A long *swish* followed by a pause, and then another swish. Exactly like someone wading through the water—but louder. A sudden chill ran down my spine and I began to move my head slowly around. Harry watched me with wide open eyes. It took me a full minute to turn my head. During that time the swishing was not repeated, yet I felt that something lurked there. Then I saw.

It was one of the machines! Like the guardsman we had escaped at Brooklyn, only immensely larger. It stood knee deep in the current, its head above the tree tops and its rope-like arms curled just above the water.

I think we just stood still in sheer horror staring at the thing for a moment. It was more than a hundred yards away, yet it already overwhelmed us. A good seventy feet of each leg was visible, with the river swirling and eddying about their base.

For a moment we stared—paralysed—and then with shrieks of terror we plunged into the Potomac. At this the monster came to life. In two strides he covered the distance to the wreck, and in another the three mighty legs tore the river to foam as they passed us. A pair of animated steel cables dropped down upon us and the next second Harry and I were hauled a hundred feet aloft and dropped on the shoulder-like disc which supported the tentacles. In mortal fear of falling we clung to the base of the post supporting the eyes, which were a score of feet higher. Then, with sudden jerks and swaying, the great machine began to work on the airship. We had no chance to observe closely what was occurring, but I know that after some fifteen minutes of labor, the airship was stripped of its wings, and the hull divided into four pieces. This done, the sections were picked up and the creature, walking with a lurching gait, which covered the ground, or rather water, at a tremendous speed, started wading up stream.

Rounding a point, the machine almost collided with the small launch, heading down near the shore. I can imagine the terror of the occupants at the sight of that vast shape of metal coming with its many swinging arms, looming almost a hundred and fifty feet over them. The launch swung sharply to the right and grounded, while its passengers leaped into the river. The monster paid no attention to them.

Recaptured!

AFTER going about a mile more, the machine turned to the right and, cutting across the river in tremendous strides, soon emerged, dripping, on the North shore, just outside the city of Washington.

Crossing railroads and highways, and snapping telephone and power wires, the iron monster headed inland with great steps. He swerved neither to right nor to left, and his path was lined with destruction. The four miles to Kensington, a suburb of Washington, were covered in as many minutes. Here there were more people—some cars waiting at a service station, and a few people with lunch pails waiting at the inter-urban depot. The sky was getting quite light and rosy in the east, and a bell was chiming the hour of six when the machine descended upon Kensington. It came suddenly out from behind a row of tall trees, and rushed with awful swiftness upon the town. Down a side street, across a back yard, I heard a smashing sound as an outhouse was kicked to matchwood. Then one great leg swung out with a rush and, breaking down telephone wires, crushed a hole through the paving of the highway I caught a glimpse of five or six people running like jack rabbits from the filling station, of others yelling and pointing from the depot—and then the machine lurched upwards again. One leg hit the service station, jarring the machine, and then it was on again, dragging a sheet of tin roofing behind the leg.

We heard another crushing sound, although we could not see over the wide disc, after which the machine strode unhindered out along the railway tracks to the north.

Missing Spencerville and Laurel, Maryland, by only a few miles, the machine went through Guilford at 6:20, wrecking a large barn and a general store. Clinging to the Thing as we were, neither of us could get a clear glimpse of what we were going through.

After Guilford, we passed through a succession of small towns—the names of which I cannot remember—and then entered a large bay, which I later learned was Baltimore Harbor.

Crossing Sparrows' Point, the machine entered a series of smaller bays, terminating at the Susquehanna River. The creature crossed it and some fifteen minutes later entered Delaware.

From here on the ride becomes more like a nightmare. I remember farmers shooting at the machine as it went by, and also an airplane that circled us somewhere near Trenton. A little later the Thing, avoiding the roads, entered the deserted area about New York. Here it became more cautious, evidently sensing the presence of danger.

It was almost eight o'clock when the huge machine, wading through the bay with thunderous strides, arrived at the Navy Yard. Every thing there was as we had left it, even to our little yawl, lying at the foot of the stone steps.

On the dock our captor's smaller replica, the guard we had seen in the night, was waiting, and received Harry and me when we were handed out. Then the big machine waded around past the dilapidated battleship to the shops.

The Brain Reveals It

HARRY and I, now resigned to whatever Fate had in store for us, were carried—not at all roughly—to the Administration Building of the Navy Yard and then given to a still smaller Thing built upon a caterpillar tractor chassis. This machine brought us into what was evidently some high officer's private office, and then locked the door. Almost instantly another door opened, and in came the wheeled Traveler I had last seen in Anton's apartment! It was unchanged, save for the absence of its cable and the addition of a large box in the rear containing radio controls.

The big lenses looked at us unemotionally and the liquid feminine voice spoke:

"Good morning. My friend and creator has returned. I salute you."

With that one of the long jointed arms rose above the two lenses in an odd sort of greeting. Feeling the ironic humor of the situation I responded likewise. The lenses turned upon Harry and regarded him a moment.

"I note that your companion, whom I last met a month ago, has evidently been involved in your latest escapade."

Neither of us answered, and the voice went on.

"I suppose you wonder why I have not killed you? Not yet, at least. Anton gave me humor when I was made, even if he omitted other emotions, so bless him as your savior. I spare you only because of that."

"I thank you," said Harry, glaring at the lenses.

"Bottled up anger is very bad for the system," said the voice. "I am fortunate in not possessing a temper."

"Well," I replied, hotly, "this whole world would be more fortunate if you had never been made."

"Most certainly. But, as you would say, that is their misfortune. If they can't look out for and protect their own interests, some capable intelligence should."

As the voice said this, I had a sudden thought.

"Where is the Brain machinery?" I asked, never dreaming to get an answer. However, I did.

"Over two thousand miles from here, safely beached in a submarine near an uninhabited shore, many feet below the sea."

I was surprised and greatly disappointed. Yet what else could be expected? Shelled daily, the Navy Yard was altogether too dangerous a place for the delicate Brain mechanism. There was nothing here but radio-controlled machines, while the real root of the trouble was thousands of miles away.

Possibly my chagrin was reflected in my face, for the voice immediately said— "Don't be disappointed. There is absolutely no chance for the world. Mankind will simply have to do as I wish, or be exterminated."

"What do you wish them to do?" I asked. "Why is it that you spread death and devastation everywhere you can reach? You seemed to have some unaccountable destructive plans the very hour you were made. What is it all for?"

A SOUND slightly like a chuckle issued from the speaking panel, and the voice resumed:

"Your questions are perfectly logical, and I see no reason for secrecy. Like all living creatures I desire pleasure, and if that wish takes odd forms, you can blame it on Anton. Pleasure for me consists in building machinery, every step higher than that made before, and in conquering all of the material Universe. That is what I intend to do. You notice I began with the voice, then the smaller metal walking machine, whose parts were delivered while you were in the closet of the apartment. Later, with the facilities at the Navy shops, I built larger handling and working machines, then the airship, and last the Walker which carried you from Washington. Now I am working on a mechanism to navigate interstellar space."

We fairly gasped. Then remembering— "But how did you ever make that ray?"

Again the Brain offered to explain. "That I made from materials right in the old laboratory. It has to do with a problem your scientists have long struggled with—atomic energy. With an alternating current of a certain frequency, equal to the periods of vibration of the atoms of the substance, I nullify the attraction of the electrons and the protons and so release them from the atomic structure. The freed electrons, moving at speeds over 100,000 miles a second, tear apart the molecular structures of any substance they touch, causing the explosions.

"Only one substance will stand the electron's bombardment, and that is a residual material composed of the nuclei of the atoms. One part in fourteen thousand is left in the form of a black dust whose weight is 14,000 times that of water."

"What!" I broke in, "14,000—"

"Certainly. Is there anything unnatural in that? The residual substance left from water weighs exactly 910,000 pounds to the cubic foot. That is about 455 tons.

"The insides of the ray projectors are lined with this material. It is scarcely a hundredth of an inch thick, yet it weighs the projector down as though it were filled with lead. The minute particles formed by the ray itself are reflected from this lining, but will pass through any other substance as though it were gas."

Forgetting for the moment that we were prisoners, with hardly a chance to live, I asked more questions.

"How do you control all these machines? Surely not by ordinary radio?"

"Certainly," said the voice. "Using a very short wavelength, I managed to crowd the commands for every machine into one carrier wave. I use a wave—" the voice checked itself. Even as it did, by some strange telepathy I understood the reason for that check, and instantly there formed clear in my mind the one way—the only way—of destroying the Brain's power. The wavelength—the radio messenger which carried the Brain's commands, was the one vulnerable point in the whole system. It was the Achilles heel, as it were.

Thanking the stars for my often derided poker face, I strove to put the thought from my mind and asked the Traveler several other rather purposeless questions, which I cannot remember.

However, after this the Traveler seemed less inclined to talk and a little later we were put in a basement room with only one heavy oak door, upon which we could not make even a dent. I at once told Harry my plans in a low whisper, for fear of being overheard. The only thing remaining was for us to escape—to get in touch with the world some way, and the menace of the Brain would be gone forever. We explored the cellar minutely for several hours, covering every square inch of floor, walls and ceiling. However, this search offered little hope. All we found was a three inch drain pipe in the floor. The cellar was all of concrete, or we would have tried to tunnel, and everything seemed to point to a prolonged stay—when suddenly out of a clear sky the unexpected happened.

CHAPTER VIII

The Last Hope

ON the morning of the second day after our capture, the door opened suddenly to admit the caterpillar tractor machine. This escorted us upstairs where the Traveler had its abode, and we were immediately confronted with that mechanism.

"Good morning," said the feminine voice. "I hope you slept well."

I glared, bethinking myself that Anton had not omitted to put in sarcasm when he built the Brain. Then—

"I am going to give you the honor—the great honor—of being my messenger to the world," said the voice.

My heart leapt. Then at second thought it seemed to chill within me. I had heard of this kind of messenger before. I might be a messenger, but only one fit for burial. But I was mistaken. I did not reckon with a perfectly emotionless thing like the Brain for—

Holding out one arm, in which it grasped a folded sheet of paper, the voice said:

"This informs the World of its fate. You can explain what I have omitted. Go!"

Taking the sheet of paper I walked from the room, not even glancing at Harry as I passed, but signing with my right hand, in deaf and dumb language one word to him. It was—"Hope."

I was escorted to the yawl, which still lay at the quay, by the thirty foot walking machine. Then paddling into a brisk southerly breeze at the Navy Yard entrance, I started across the bay. The great metal figure behind watched me impassively and then disappeared. I was free! And with the great secret that would save the world.

The weather seemed to share my rise in spirits, for it was warm and sunny, and the little waves, flecked with

foam, danced as though rejoicing in my escape. Looking at the sun I judged it to be about 9 a.m. which, allowing two hours to reach Jersey, would bring me to Col. Windham's headquarters about 11 or so.

Although my little craft fairly leaped through the bay my progress was snail-like compared with the speed of my anticipations. I even caught myself humming a popular tune as I swung the tiller. The only thing to mar my good spirits was Harry's absence. However, I feared little for him as in a few hours, at most, my plan would be in operation, and then—

That made me think of the sheet of paper which was still in my pocket. Opening it, I read:

"The world has one day to live until the Telepather submerges it in the sleep of eternity."

In some two hours and a half, I found myself at the door of Col. Windham's headquarters. Col. Windham had never met me, but he knew me at once. I showed him the note, explained the Telepather to him, and then—just as despair settled darkest upon his features—told him my plan. I never saw such a change in a man. He leapt to his feet and seizing me by the hand almost wrenched my arm off. Then startling his staff almost to death he ran out of the door, hauling me after him. After a month of constant defeat I suppose it was a great relief, but I never expected to see such a demonstration. The officers listened avidly and then burst into cheers. Col. Windham, hatless, dispatched the messenger for his car, and in a moment, wearing an Army overcoat several sizes too large, I was speeding northward with Windham and his staff.

Boston was our objective—Boston, the seat of the great Naval wireless station, where scientists had recently conducted experiments, using radio waves as short as two meters. There we were to save the world!

• • • • •

IT was night again, but no longer a night of despair. For like an electric wave around the world had flashed the message of hope, buoying up millions, even as my departing signal had buoyed up Harry. No details were given to the people. Secrecy from the Brain, whose agents seemed everywhere, was imperative. Once let the Brain know—Hope was the only message sent out—hope, backed by the great scientists of the world.

It was dark in the great radio station. Surrounded by the coils and tubes, the dials and switches, of the most powerful radio apparatus in the world, we stood waiting: Col. Windham, his staff, myself, and a half score of scientists, and radio electricians. We were connected by telephone with a lookout station in Brooklyn, where a lone watchman with powerful night glasses watched the colossal form of the iron guardsman at the Navy Yard. Constantly his reports came in—"Still walking—still walking—still walking—"

At a tall switchboard, illuminated only by a tiny lamp, stood Prof. Maricot, the greatest radio engineer in the world, turning dials and levers, hairsbreadth by hairsbreath. To his right was a big dial on which was recorded the wavelength on which the station was broadcasting. Its pointer had begun at 50—now it had dropped to 21.

Pale moonlight slanted through the windows, and outside I could dimly see the bay, like a jewel-studded plain. The scene, so full of tiny patches of light and vast shadows, hurt my eyes—the lighted face of Prof. Maricot seemed like a tiny pool of brightness swimming in a black immensity. I rubbed my eyes and tried to concentrate upon the indicator.

Time slowly passed; the monotonous voice of the watchman continued— "Still walking—still walking—still walking." It came from a speaker hidden in the deep shadow.

Four meters. Still the loud speaker continued its endless "Still walking—still walking." A radio receiver tuned with the sender, gave vent to a subdued buzz, which was the signal sent out into the ether—the signal which should paralyze the Brain's radio commands with its greater power, and turn all those monsters into dead metal. Would our wavelength ever reach the crucial point? Two meters! Just a few minutes more would decide it. For if the station failed, the paralyzing waves of the Telepather would strike out across the earth tomorrow and wipe mankind from the globe.

And then suddenly it came. The heretofore monotonous voice suddenly rose in pitch: "Stop! Stop! It has stopped! The machine is staggering—more—a little more—now it cannot walk—Ah!—it is falling! The monster is falling. More—more— It is still struggling—stop! The struggling has ceased—the machine is lying on its side—it does not move!"

Prof. Maricot took his hand from the dial and turning to the assembled scientists and officers said simply—

"We have won!"

• • • • •

IT was morning. Morning, with the glorious sun shining upon an earth freed from the awful bondage of terror.

It was the morning of rejoicing! The rejoicing of a world so recently overcast with the shadow of despair! In Boston the world's most powerful radio station was sending out, without pause, the radio waves which were paralyzing the Brain's commands, while militia men and scientists, engineers and generals, swarmed over the Navy Yard and marveled at the wonders they found there: gigantic overturned machines, scores of them; wonderful appliances of almost magical complexity—radio-controlled machines capable of almost human actions. And in the machine shops they found one thing that sent a chill through their hearts as they thought of its possibilities. It was a great telepathic apparatus, connected, ready, only awaiting the signal which would put it into operation. Given a few hours more, and the Brain would have had no more hindrance to its ambitions.

I cannot describe the wonderful things found there. You, who read this, can get volumes containing full explanations of them. Suffice it to say that they found seven colossal walking machines, besides the 200-foot giant which had carried back the wrecked airship, and almost a score of other titans weighing dozens of tons each, evidently designed as working machines. In addition there was a half-completed space flying mechanism, whose very incompleteness made its principles undiscoverable.

During the first day the radio controls were all disconnected, and only then did the station cease signaling. Of the Brain machine itself, no trace has ever been found; probably unattended it ran short of power and became only a slowly rusting piece of machinery somewhere beneath the sea. However, mankind is now prepared for the Brain, should it reappear, for ray projectors have been built and the radio stands ready to fight any new attempt at new invasions.

And now, last but not least, I must speak of Harry Blanchard. He was found immediately in his cellar prison, still in ignorance of what had transpired, and thoroughly surprised at my appearance at his door.

And so ends the story of the Infinite Brain. Nothing like it can be made again, for Anton carried the secret with him, and its disjointed machinery has never been found. However, the world in general has profited much by the Brain's inventions, and the terribly destructive violet ray is the lasting guarantee of world peace.

THE END.

The Day of the Beast

by D. D. Sharp

(Illustration by Butterfield)

Every one of its eight large tentacles was silhouetted against the cliff. I dared not fire. There was only one thing to do—to infuriate the thing to dare to attack me.

THE DAY OF THE BEAST

By the Author of "The Eternal Man"

I AM a chemo-biologist, a solitary worker. The things which I am about to relate are in themselves so strange, that I am afraid they will strain your credulity, especially when I admit that they were the results of experiments with the basic elements of life. Looking back over the weird events of those days when I was out in Deep Canyon, they often seem to be entirely unreal. And only when I meet Donald Shane and he talks about his part in them do they become definite and ghastly realities.

I was seeking the laws of causation, the principles which govern the factors of growth, and I had the most sanguine hope that I might thwart nature, which is so lavish with life for the species and niggardly with her allotment to the individual.

At the beginning of my experiments in the field of cytology,* I had my laboratory near the outskirts of a small western town. But when some repulsive monstrosities resulted from my first attempts at chemical stimulation of cell growth, I felt it advisable to move to a more isolated district.

D. D. SHARP

My first success was one-sided. My formulae stimulated only certain cell tendencies, the bone-producing ones. The dog into which I had made the injection grew to the size of a pony. Its teeth grew out like tusks, interlocking and protruding beyond the upper and lower jaws, so that I was obliged to give it nourishment through a tube. But all other cell activity remained normal. The muscles, skin and flesh stretched, trying to keep attached to the huge bones. The dog was never able to move after the second week.

But I was greatly encouraged, for I had accomplished cell activity under artificial stimuli. It was not that I wanted to produce large animal growths; my purpose was to find the secret of cellular division and multiplication, so that I might stimulate or retard it at will. One does not need a fertile imagination to visualize what might result from perfect artificial cell stimulation. Wounded or diseased tissue could then be extirpated by skilled surgeons and regrown; so also could new teeth, arms, legs—the possibilities were astounding.

I most certainly would have tried other solutions upon my monstrous dog, in the hope of stimulating the growth of flesh to conform to the bones, had it not been for some of my inquisitive and meddlesome neighbors, who reported the dog to the police. In the end I was ordered to kill it.

After that I set about trying to find the flaw in my formulae. I tried new combinations and the result was as startling as in the case of the dog. In trying to promote the flesh growth, I experimented upon a cat. I had an idea that my fluid would probably act more uniformly if given internally, than if injected directly into the veins. I poured a small quantity of the solution into a graduating glass. Then I started to put the cat into a common gunny sack, so that I might handle it more easily. But when the feline clawed my arm violently I involuntarily released it. It sprang upon the laboratory table and overturned the solution, and in my effort to save the solution I paid little attention to the cat at that time. I did notice, however, that it shook its head and pawed at its eyes. The chemical was not caustic, but it must have been painful to such tender organs as the eyes, for the cat hissed, and leaped out the open door and was gone. At that time I was out of one of the ingredients for my formulae and had to wire for a refill before experimenting further, for the cat had spilled all that I had.

A FEW days later the cat came in, meowing piteously. Its eyes were large and globular and spread so that they actually touched each other across its face. I was sorry for the cat, for I realized that light was now exceedingly painful to its eyes. The daylight blinded it, so I caught it rather easily, and put it in a dark room. Now I was sure that my new solution was the one I needed to correct the flaw in the first experiment, and I waited eagerly for my refill, hoping to be able to bring the cat's whole body up to the proportion of its eyes. But the delay was fatal, for in the meantime the cat escaped. Then imagine the presence of a pop-eyed cat running loose through the town, one that hid by day and prowled by night, and peered into windows as it grew hungry for food. The town really became crazed with a superstitious fear by the time it was captured. Eventually the animal was discovered to be a product of my laboratory and I was asked to abandon my experiments or move to a less inhabited location. People did not seem to understand the purpose of my work.

For a few months I remained where I was, inactive but plotting a defiance against the "narrow-minded" citizens. But when I heard of a stone house under the cliffs at the mouth of Deep Canyon, I realized that my work must come before my pride, and so decided to move.

It was an isolated spot and it struck me as ideal for my work. Accordingly, I arranged for a two years' lease, and had my equipment moved, together with some rabbits, two goats and a horse. The place was

THE laws that govern the growth and decay of our bodies are still only imperfectly known to us. We are born, we live and we die understanding only in part the mechanism that guides the life process.

If we could discover these things, what a different world we might create for ourselves! There would then be no immediate limit to the size of our bodies, perhaps even to the size of our mentalities. We could replace our worn-out organs with others, could continuously rejuvenate ourselves and become immortal supermen. But before this can come about, there needs must be a great deal of experimentation and many, many disappointing failures.

It is possible that, in the course of those experiments, man may start in operation a force that he cannot readily control.

The question that Mr. Sharp poses at the end of this story is a most pertinent one and we recommend its consideration to our readers. In other words, even if man is courting destruction in an attempt to improve his species, should he not continue?

We hope our readers will, after reading this story, give us their opinion on this question.

* The study of cells and their activities.

some miles off the main highway, and one got to it over a little-used road which wound across bare mesas and down into Deep Canyon.

As soon as I was established in my new quarters, I prepared the two solutions and mixed them, and injected a small quantity into one of the rabbits. For some weeks I thought my experiment was a complete success, and I set down the formulae carefully in my diary so that the discovery should not be lost in case anything happened to me. Then I found there was still a serious error to be overcome. I could start growth *but I had no means of stopping it.*

For long weeks after that I worked hard trying to find some method of retarding the inevitable cellular multiplication after it had reached the desired growth.

It was about that time that Donald Shane drove out to see how I was faring in my new quarters. Don was a young, likeable chap with whom I had become acquainted in the town which had treated me so sourly. He was boyishly interested in cytology, and with everything that concerned my adventures with the unknown elements. We had formed quite an attachment for each other.

I met him outside the door to welcome him to my hermit quarters. As his car stopped, he leaped out and rushed to me.

"Well, here I am, professor," he shouted, grinning broadly. "I got to worrying about you away out here by yourself. I was afraid one of your monsters might swallow you. I guess that's about the only excuse I've got for not waiting for an invitation."

A Spider

I DIDN'T say much as I grasped his hand, but merely mumbled something about how glad I was to have him. But I was really touched that the young man should take so much trouble to come so far to see me. It was no small trip over those wild bare mesas.

I remember now how he held onto my hand, and there was something in his fine gray eyes which gave me the feeling that here was a friend such as few men had; the kind of a friendship that brushed away the twenty years' difference in our ages.

Don was talented and energetic and there is no prophesying what he might do for the good of the world. He had and still has an insatiable zeal for knowledge, and a courageous and daring persistence that should carry him far—but I am getting ahead of my story.

He followed me into the house, and after we had talked for a while about commonplace things, I took him around. In one corner I showed him a perfectly developed rabbit about the size of a big hog, and told him I would soon have to kill it, for it was growing so fast it would soon be too big for its cage.

Donald was enthusiastic. It was evident he wanted to know my formulae, and seemed afraid something might happen that might cause the loss of my discovery to the world. But at that time I was not ready to give anyone the secret for I wanted first to correct its flaw.

After that trip he came out rather often, and he always displayed a sincere enthusiasm—such as one man rarely betrays for another's discovery.

My experience with the rabbits proved I needed something smaller to experiment with. I wanted more time to study a specimen before it outgrew my control over it. Donald tried to get me some white mice, but unable to find any in the town, he ordered two dozen from the east. In the meantime I had to kill the last of my rabbits.

At that time my mind was wholly upon my work and I fretted at the delay in going on with the tests. The night before I had captured a spider, one of the *Lycosidae** or *Salticidae.*** This species was rare in our canyon, so I had placed it in a large mouth bottle, intending to give it to Donald when he came again, for he was making a collection of spiders.

There the thing remained sulking in the bottle upon the laboratory shelf. Impulsively one day I picked up my tweezers, uncorking the bottle, I lifted it out. Then I immersed it in my new solution and dropped it back into the bottle, naturally recorking the bottle. I knew that the spider would be ravenously hungry in less than an hour, so I got the fly swatter and went to the barn on a still hunt for blue-bottle flies. I was still killing them when Donald drove up. He had the white mice and had driven out directly from the express office.

A Disappearance

I TOLD him about the spider and he was anxious to see it, so we went back into the laboratory, taking my small catch of flies. The spider was circling around and around at the bottom of the big bottle, its legs feeling with a ceaseless insistence for some exit from its glass cage. The solution was certainly having a fine effect and the spider must have been very hungry. I opened the bottle and reached my tweezers down for the frantic insect, but it leaped out upon my hand and buried the claw joints of its falces† deep into my flesh and sank its proboscis‡, feeling for blood to satisfy its acute hunger. I threw up my hand involuntarily, as one will, in disgust at seeing it feeding upon my own blood. But I was not afraid of its sting; for I knew enough about spiders to realize that the small amount of poison in its sac would not harm me.

Don laughed boyishly. The spider hung on and I brushed it off against the shelf. It fell behind the table among some demijohns and jugs, and though we searched around for it we could not find it.

"We must find it, professor." Don insisted, "It's somewhere around here."

We hunted methodically, moving every bottle and box in that part of the room; but our search was unrewarded. It was evident the spider had escaped through one of the many cracks about the floor of the old house. Don was more uneasy about it than I. His vivid imagination had it growing to mammoth size and preying over the country side. And, though I knew as well as he that spiders are predaceous, I told him I was certain it would show up around the place before it had grown very large, and then I could either capture or kill it.

Don left the next morning after we had inoculated one of the mice with my new serum. No more had been said about the escaped spider, and Don promised to come back the next Sunday hoping to find the mouse as big as a packing-house hog.

Frankly, I was more upset by the loss of the spider, at that time, than I would admit even to myself. Not that I had Don's fear that it would run away and spread havoc over the country, for I believed it would be hungry and hang close about the house. There was no food for even a spider on those bare malpais mesas which surrounded the canyon. What did disturb me was the thought that it might crawl into my room and feed upon me during the night. I have a horror of sucking parasites. Further, the doors to my bedroom did not fit well; there were many crevices through which the insect could crawl to pounce upon me as I slept.

---

* A family of swift-running spiders with a peculiar eye arrangement.

** A family of leaping spiders with a somewhat similar eye arrangement.

† Appendages, one at each side of a spider's mouth.

‡ The combined mouth parts of a blood-sucking organism.

I HAD an imaginative and restless night, and little better one the next. On the third day after inoculation, the mouse was big as a wharf rat and eating greedily. It would take a month at least for it to grow as large as the packing-house hog Don had spoken of. Cellular division is very rapid: its progression may be likened to the fabled price a certain king offered the blacksmith to shoe his horse; one cent for the first nail, two for the second, four for the third, eight for the fourth and so on. However, as the mouse had fewer cells than the rabbit to start with, its growth was much slower.

Knowing this, I supposed that it would take an even longer period for the escaped spider to attain an appreciable size. Imagine my surprise and concern on the fourth day, to find a hideous, short-furred mass in a badger's hole just outside my door. That hole was eight or ten inches in diameter, yet the thing in it was so large as to fill the hole's mouth completely. It required a second look for me to accept the mass as the tiny spider I had treated but a few days before.

It must have been very hungry to be running around now. For, though the sun had already gone down, it was quite light in the canyon, and I knew this species to be nocturnal in its habits. I was so startled by the size and ferocious look of the thing, I allowed it to escape from the hole before making the slightest attempt to confine or kill it. Then I had no opportunity at all, for the monster leaped, spreading its eight legs and glaring hungrily at me from each of its eight eyes. It leaped again with such swiftness that I escaped it only by a miracle. I fled into the house and slammed the door after me. Then I heard one of my goats bleating.

Arming myself quickly with a heavy board (I had no gun in the house) I ran outside to kill the thing, for I was in terror of what it might grow into. I might have killed it then, but the goat became panicky and fled with the black mass of the thing sticking down hungrily upon it. The spider's proboscis sunk into the large vein of the animal's throat, and its long-jointed legs clutching like the tentacles of a devil fish upon its victim.

I have since tried to account for the extraordinarily rapid growth of that spider. Why should it have developed so much more quickly than the mouse? For a long time I concluded it was because the spider, being a blood-sucking insect, therefore assimilated its nourishment more quickly than the mouse. Since then I have arrived at another conclusion. I cannot prove my theory, and anyone is at liberty to advance his own explanation for the differences in rates of growth. My own is that the spider, although the smaller, has far more cells than the rat, more even than a cow or other brutes, but simply that the cells are smaller. This would give a larger number of cells to start dividing and they might swell with blood much as a tick does. This theory is partly substantiated by the fact that the spider has four times as many eyes and twice as many legs as the rodent, indicating its whole organism is much more complicated. Be that as it may, the unexpected rapidity of the spider's growth and the fact that I did not keep a gun upon the place was to wreck the whole scheme and structure of my scientific career.

At the Door

I SPENT two days searching for that spider, armed with nothing but a board for a shield and a stout stick for a weapon. I found no trace of it until the third morning when I started early on my continued search. Out by the barn was a ghastly bulk of evidence indicating that the thing had not quitted the place. I was disquieted, even alarmed by the exhibition of the destructive power of that predaceous monster. For stretched out I saw Barney, my horse, lying dead in its stall, shrunken and withered as though it had been drained of every drop of its blood and moisture. Here and there upon its body were deep incisions where the big spider had buried the hooks of its falces into the hide. The depth and width of the incisions told me plainly that no life would be safe, either human or animal, while the spider was at large.

I knew there was no time to be lost; I must hunt the thing down immediately and kill it. It would grow larger and more dangerous each day.

Yet the stick and plank I carried about were ridiculously ineffective weapons against anything of the proportions implied by those wounds.

Don had promised to come out again the next morning and he might, as he occasionally did, bring along his 30-30 Winchester rifle for a shot at stray lobo wolves or coyotes upon the mesa. I decided to keep to the house that day and wait for Don, hoping he would bring along the gun. If he did not bring it I would, of course, ask him to go back for men and guns at once. I determined to be ruthless now and get the thing killed as soon as possible. The way the thing had leaped at me; the shrunken horse and the size of the dark hole where the proboscis had entered its neck to drain the warm blood from the beating heart, all put a queer, chilly fear upon me.

I went back into the house and locked my doors. I spent the rest of the day miserably and all night my imagination played with the ghastly thought of what the monster could do should it kill me before I had time to warn Don or the surrounding ranches. I knew that when it could find no more food about the place it would steal away into the night to pounce upon man or beast.

Soon after dark I heard it drop to the roof from the canyon wall. It had a scratchy crawl as it crept over the flat top of the house; and the timbers creaked and groaned. It seemed lightfooted but very heavy. Then I heard it leap to the yard.

After a moment when I heard the goat bleat pitifully, I poked the four hundred-foot beam of my flashlight through the window and searched the yard, but the thing leaped away from the blade of light and took the goat with it. A few minutes later I heard the rats squealing as their cages were smashed.

After that all was silent for a long time, and then the thing seemed to smell or sense my own warm blood. It came close to my bedroom door which opened directly outside. I leaped from my bed and grabbed the stout stick I had brought into the room with me, and turned my flash upon the door. The beast scratched and pried. The claws of its falces crept in under the door, five or six of them at a time, as the thing rasped heavily and the thick oak door creaked under the strain.

It kept that up most of the night and I was glad for the coming of day when the bright clear sky and the new sun drove it back to the cliffs. I went outside and found the hulk of the goat and the mice, but otherwise everything seemed calm and peaceful. There was not a breath of wind or a speck of cloud.

About noon Don came and I rushed over to his car.

"Did you bring your gun?" I asked before he had stopped.

He stared at me in alarm.

"Then you haven't found it."

"Great Lord, Don! It's horrible!"

"You mean it's gone?"

"I don't know," I admitted, "but I think it's hiding somewhere up in the cliff."

"How big is it now?" he asked.

"It must be as large as a calf; I haven't seen it for two

days, but it was very heavy upon the roof."

Don dragged out his 30-30 and worked the lever; then he looked over the mechanism carefully and filled the chamber with cartridges. This completed, he turned to me and smiled.

"Wouldn't Teddy R. like to be with us now? This is real 'big game' hunting."

"I'm glad you feel light-hearted about it, Don. I don't," I said seriously.

He grinned broadly.

"I did feel frightened and awed at first," he admitted, "I was prepared for most anything from that hellish solution of yours, professor. I was afraid it had gotten too big to be killed by this time. Now it will be sport to hunt the thing."

"Don't be careless, Don," I cautioned, "there never was a leopard as quick as that spider is."

I then related how swiftly it had leaped at me two days before.

HIS gray eyes sobered again. "It would be hell on you, professor, if it got away and killed somebody. I don't believe you'd ever get over it. We've just got to find the thing and now's a pretty good time to start."

We hunted all that afternoon without results. We ate no lunch and talked little, saving our breath for the climbs. About twilight we came back to the house without having found a trace of the spider. Don took some raw steak which he had brought out for me and put it where I had staked the goat.

We were both very excited. I was apprehensive but Don was eager. He was like a boy on a lark, and very determined, as a matter of pride to get that spider.

I ate no supper, but Don munched some cakes and drank several cups of black coffee to keep him awake. I knew I should never sleep until that spider was destroyed.

Don had not finished his cakes when we heard the thing land upon the house. He leaped from his chair, swallowing a mouthful of cake, and grabbed his rifle. There was an air of conquest about him as he leaped towards the door, which he flung open and was out into the night before I could stop him.

"Wait Don!" I cried, "Don't go out there!"

I had been sitting at the far corner of the room trying to read in order to hide my uneasiness from the boy. He got outside the door before I could get to my feet.

Almost immediately I heard him shout: "Help, help!" Then bravely as though striving for control: "No. Don't come. Oh! Oh!" His shriek ended in a low moan.

I grabbed a straight chair as a weapon and picked up my flashlight as I passed the table. I flung the door open. Don had slammed it shut behind him.

Outside everything was silent. A four or five day old moon hung its pale crescent close down against the high rim of the opposite canyon, and cast a sickly glow over the white limestone cliffs above. As my eyes searched alertly for the terror I knew was lurking near, I saw a long white rope swinging down from the cliffs. It curved gracefully over toward the house like a white telephone cable and under the beam of my flashlight it glistened with the peculiar sheen of raw silk. Of course, it was the web by which the spider had descended to the house, and for a moment my eyes followed that silk cord as it swayed back and forth in the night breeze, for I knew that at the lower end of it was the monster.

Out of the shadows of the house, at my very feet, reached a hooked tentacle and crept across the doorsill. Another repulsive claw felt its way up beside the first and caught the yellow glow of the lamp back inside the room. I leaped back and struck out with my chair. Then I poked the beam of my flashlight into the dark shadows of the cliff where the thing crouched. There it was, big as a burro, and under it was Don with its hooked falces buried in him and its proboscis seeking about for the best spot to drain the blood from him. Its eight big eyes glared at me balefully, while its eight long, two-hooked, seven-jointed legs flexed themselves and began dragging Don out of the light.

THE Winchester was lying near the door where Don had dropped it when the spider clutched him. With a bravery born of terror I ran and grabbed the gun. Raising my weapon I poked the beam of my light around the house. The thing was gone!

I made a quick search about the premises with the long blade of my light, playing it over the barn, upon the demolished rat cages, and then upon the chalk-white cliff. There it was, I saw with a gasp, almost a hundred feet above the house, climbing its silver ladder and carrying Don up to its lair. Every one of its eight large tentacles was silhouetted against the white cliff and at their center was the dark circular mass of its body. Below it dangled Don's arms and legs as the spider climbed the silky rope.

I dared not fire. The drop alone would be enough to kill Don. There was only one thing to do, infuriate the thing, dare it to attack me. I ran to the long flow of the rope and shook it with great jerks and heaves. The thing merely raised long tentacles at me and rasped heavily. I shook again, and like a boat going down the chutes, it slid toward me. Evidently Don was not badly hurt, for he hung above to the web and followed very slowly. But I had no time to watch Don, for the monster was now far enough below for me to risk a shot.

I raised the rifle and fired, not even trying to locate the gun sights in the dim light but aiming instinctively. I missed. The spider seemed to fall from its hanging position, but as it neared the ground it swung itself from the cliff and leaped toward me.

The sight of it paralyzed me as some terrible unreal nightmare. I felt every moment I should wake up grateful to find it was all a dream. With a last effort of my will, I shook from myself the hypnotic fear of the terror above me and marked a spot as near as I could at the center of the glittering malicious eyes. Those eyes were as large as hen eggs. But my shot told and the thing fell short of its leap for me and writhed a moment where it had fallen.

It had dropped between me and the house and as it crouched ready for another leap, I ran for the protection of the barn, and dodged behind it. The thing faced me not twenty feet from my refuge. Hate, rather than hunger, now burned in its terrible eyes. My two bullets had torn away one eye and three of its tentacles, which gave it a lopsided gait as it crawled toward me. The thing was mutilated but it was not frightened. It seemed anxious to attack, and stalked me, feeling out with its five unharmed hooked tentacles, feeling out to seize me, as it advanced. Its eyes were those of a devil, and every one of them focused upon me as though the diabolical brain back of them had no fear and wished to turn upon me the great strength I had given it. I was almost paralyzed with fear.

It leaped again and I felt the falces bury into my shoulders and thighs with a deep numbing pain as it pulled me down, knocking the gun from my hand. Even caught in the terror of such a death, I remember thinking anxiously of what a menace the monster would become to the ranchers and townsfolk for a hundred miles around. I made a last desperate effort to wrench free and another hooked tentacle clawed into my arm and I felt the sharp point of the proboscis raking about my throat, feeling or scenting for

the veins.

There came a report and then another and another and the big pulpy mass wilted and covered me. I choked and fought and felt the claw joints of the falces slip from my flesh. When I was able to crawl from under the mass of short-furred flesh, Don was standing weakly beside me. He had found the gun under the light of the moon and had finished the monster.

"Don?" I cried, "You are all right?"

He smiled and shook his head. "Only clawed a little. Can you get to the house?"

"I believe I can," I answered and limped toward the open door with the hurt of my wounds beginning to sting and burn.

When we were inside the house and had washed and bound each other's wounds, I limped over to the bottle of solution I had last prepared. The horror of the thing to which I had given so much strength was still upon me, I grasped the big bottle and dashed it to the concrete floor. Then I took my log book and ripped from it the pages of my complex formulae and struck a match.

"No, professor!" Don cried and leaped from his chair.

"No! professor," Don repeated, "Age is too cautious. Merely trying to save what is, rather than creating something more perfect. The best is yet to be; let me have your secret. I will carry on. I am not afraid. Daring has always gained more than it has lost!"

I was impressed. I did not strike another match, but locked the sheets of the formulae in a steel safe. And that is where they now are. I have not given the secret to Don, neither have I destroyed it. Don may be right. There would be much benefit to mankind, should Don or I find some way to stop the cell multiplication after it is started. But, there is the chance that no way to stop the dangerous growth might be found, and much harm might be done to mankind by an unscrupulous fiend, or foolish scientist, should my formulae fall into his hands.

It impressed me that the monster spider and the fight we had with it, should be a lesson of caution, a warning that I might have been encroaching upon the Great Keeper's grounds.

And yet—what shall I do? What is right, and what is best?

I do not know.

So I am writing down the whole history of my discovery and of its menace, and asking all of you, who are so wise, and you who are so foolish, to dare an answer; you may be either benefited or destroyed—you who were my first thought at the time of my investigations, and who are now my only concern. What shall I do?

THE END.

ANNOUNCEMENT

THIS issue concludes the first successful year of SCIENCE WONDER STORIES. The publishers take occasion to thank their many friends and followers for the enthusiastic reception which they have accorded this magazine.

For some time it has become apparent, however, that if the magazine is to assume really large proportions and serve fully its mission as the organ of science fiction, it will be necessary to reach, in addition to its present reading public, the general public as well. It has been felt for some time that the word "Science" has tended to retard the progress of the magazine, because many people had the impression that it is a sort of a scientific periodical rather than a fiction magazine. In order to correct this impression, beginning with the June issue, the word "Science" will be eliminated from the title as shown in our illustration reproduced herewith.

WONDER Stories

The general contents of the magazine, however, remain the same, with the exception that we hope to continue to improve upon the quality of the stories, as we have improved upon them since this publication was started.

It is believed that making this slight change, and so providing a wider field of circulation than the magazine has had before, will mean to the old readers just one thing: that the magazine will be more successful, which in turn will mean more and better stories and a more enjoyable magazine all around.

The editors would very much like to have your reactions, on this new and progressive step, for publication in the next few issues of "our" WONDER STORIES.

—*The Editors.*

THE CITY OF THE LIVING DEAD

by LAURENCE MANNING AND FLETCHER PRATT

(Illustration by Paul)

The man with the metal mask rose, and going to the board transferred one of the loops from one hole to another. For a long time I watched . . . .

THE CITY OF THE LIVING DEAD

THE sun sank slowly behind the far-off, torn and rocky crags, throwing up a last red glare like a shout of defiance as the white tooth of Herjehogmen mountain blotted the last beams from Alvrosdale. A deep-toned copper bell rang across the evening, and the young men and girls, leaving their dancing on the ice, came trooping up the path in little groups to the Hall of Assembly, laughing and talking. Their gay-colored clothes stood out brilliantly against the white background of the snow in the Northern twilight that often seems like day.

At the door of the Hall they parted—not without sadness, since for many it was the last parting—some going into the Hall, others passing on up the path to the line of houses. Those who entered were grave, though they had smiled not long before. Yet they were a goodly company for all that, some three-score in number and all in the fire of youth.

LAURENCE MANNING

[illegible]

Within the hall might be seen benches; a great fire against one wall, and against the other the mouldering remains of those Machines that were the last relics of the days of old. At the center was a dais with places for the elders of Alvros, and midmost among these sat a man full of years, but in no wise feeble. Strong, stern, white-headed, he bore on one arm the silver band of authority, and in his hand he held a small, shiny Machine, round in shape and with a white face which bore twelve characters written in black. As the youth took their places, he twisted this Machine, so that it rang a bell, loud and stridently. Then there was silence, and the old man rose to speak.

"My friends," said he, "you will leave Alvrosdale tomorrow. Your skis are even now prepared; your glider wings await you outside. In this Hall of Assembly, which was once the House of Power, we are met tonight, as is the custom of our people, that I may tell the story of the last of the Anglesk and warn you of the dangers you will meet. Some of you—God grant it may be few!—will be caught in treacherous winds and flung against the Mountain of the South to die. Some may be caught by the Demon Power, whom the Anglesk worshipped. Some will find green fields and prosperity, and will meet the others of our folk who have gone before . . . But a few of you will wish to return. To these I now say—stay behind! You are better off here! And I cannot go on with my tale till I have asked whether there are any among you who would prefer the life of this quiet dale to that of the outer world, with its Power, its mountains, and its living dead."

HE made a pause, and for a breathing space none stirred. Then a maid of the company arose, sobbing; she cast her shawl over her face and said she would live and die in Alvrosdale; then she went forth from the Hall. With her went likewise the young man of her choice, and as the door of the Hall clanged to behind them, the rest sat the closer and gave ear to the voice of the old man.

"There are none now left alive," he said, "who remember Hal Hallstrom in his youth; but I give you my word that it was as lusty a youth as any of yours. I was light and gay and would roll the flavor of adventure under my tongue. In those days, before the year 4060 A. D., as was the reckoning, there were legends of the lords of old, and how the Demon Power drove them through the skies and over the waters and under the earth. But they were the rusty legends of those who tell a tale without understanding its meaning. This very Hall of Assembly was held to be the home of the Demon Power, a place so accursed that none dare approach it. This Demon was believed to be the same who had so dealt with the Mountain of the South that it fell across the neck of our dale and cut it off from the world in long past ages. We know now that this is not true; but men thought otherwise then.

"In those days I heard also legends that came down from my fathers' fathers, how, when the Mountain of the South closed off the dale, the Anglesk sent men through the air to bring us this thing and that; but such tales were held foolish beyond words. Now, lo!—we ourselves fly through the air, though not as the Anglesk with the aid of the Demon Power.

"Also there were legends of the splendor of the villages of the Anglesk: how they piled stone on stone to make mountainous dwellings in which the night was bright as day by suns of their own contriving; how they quarrelled and slew each other from afar with thunderbolts; how the voices of men long dead spoke to them from Machines, and the voices of men far away spoke to them through the clouds.

"Old wives' tales! But I was young, and youth must ever test the false and true by the touchstone of experience, even as you now go forth to do . . . One who has reached my age seeks neither for truth nor beauty any more, but only for

THIS story, in our opinion, is one of the most unusual that has appeared in recent years, for it deals with a subject which is bound up with our whole existence.

We all know that our experiences come to us through our senses; that is, the senses of hearing, sight, touch, smell, taste, etc.; and that, if these senses were removed, although we would still know we were alive, the world itself would cease to exist for us.

But suppose that, instead of having our natural organs of sense, we were supplied with artificial ones, and that by the medium of a mechanical device we could experience any sensation or event that we wish. Then, you might say, we would be living in a true Utopia. However, this is not really so, and, as our authors point out so convincingly, there might be a total degeneration of our human race, and even a cessation of all life.

rest." Herewith, one of the elders touched the arm of the old man, who thereupon looked around and, as one who has been recalled to his narrative, went on.

Wanderlust

"ON a day in spring, then, as I was in charge of the flock close by the brink where Outer Dalalven plunges into the channel that carries it under the Mountain of the South, I was seized with a great longing to see these dwellings where men moved in light and music.

"Thereupon, so hasty was my mood, I slung my quiver over my shoulder without more ado, and with staff in hand set out for the Mountain of the South, making a wide circuit to the east to go around this very House of Power.

"In those days few in Alvrosdale and none outside could equal me as a cragsman. But I had need of all my skill, for, as I advanced, the edges of the Mountain of the South became ever more rugged, torn into heaps and pinnacles as sharp as daggers. All morning long I clambered among the rocky screes, not seldom tearing clothes or skin, and at noon made pause and ate, though sparingly, of the bread and cheese that I had brought for my lunch. Of water there was none, nor did I see any sign of trees or other life. The Mountain of the South is a vast wilderness of stone, hard and desolate, not mellowed with age like our summits of the Keel.

"But still my heart was high, and after my midday meal I took to climbing again. My road grew worse; thrice I was near to death, as some ledge I was on ran out into sheerest precipice without room to turn back. The loneliness of the place weighed down upon my spirit also, for all that day I saw no living thing— I, who had always known the kindly dale of Alvros, where the cow-bells tinkle ever within hearing. And at night I made camp just below the edge of the line where the snows mantle the rugged pinnacles.

"In the morn, as I started on, I still saw the summit towering far above me, and now I dared not turn back, for fear of the rocks and avalanches. All day I tramped the snow. Toward afternoon I found a glacier that eased my labor somewhat; yet up it I must move with utmost caution, for there were great crevasses running down for miles into its heart, often so hidden that it was not until I thrust my stick down through the crust of snow that they became visible. That night I built myself a cairn of ice in the lee of a rock, and camped supperless and cold.

"I AWOKE so stiff that the third day of my ascent was like to be my last. A storm had come up and veiled the head of the mountain; I was weak with the chill, the wounds in my hands were nipped by the icy blast, and my hunger had become a terrible gnawing pain. The glacier petered out and I had to clamber among rocks again—rocks that were covered with a glare of ice.

"The wind shrieked about me among the rocks; the storm blotted out all knowledge of the sun, and I knew that if another night found me on that bleak summit, all nights and days would end for me. Yet I kept on! I came at last to a place where a wall of ice-covered rock rose sheer before me; to right and left there seemed no passage, and I halted, ready to lie down in blank despair. But as I stood still, I caught sight of a black shape amid the gray of the whirling snow, and a great golden eagle swept down on the wings of the wind past me, swung off suddenly to the left and, just at the limit of my sight, turned again over the rocky wall.

"I took it for an omen and followed down the wall to where the eagle had disappeared. Sure enough, there lay a narrow chimney through the rock, that might not otherwise have been seen. I leapt into it, stumbling and slipping on the loosened stones, but going upward; and a few minutes later I had reached the top of the wall, and with it the crest of the mountain!"

The old man paused, and in the hall one might see a stir of motion, as his hearers, stiffened by listening to his recital, changed their position. He paused and looked around, as though loath to believe that he was not living again the brave days of his adventure. Then he began once more:

"It is unlikely that any, however expert cragsmen they may be, will follow my path; for we now have the wings and follow the raven, soaring over that perilous tower with never a break. But if, through courage, you should wish to attempt it, I warn you—do not venture! For I am convinced that only by the favor of the most high gods and by the omen of the golden eagle did I come through unscathed.

"When I had followed the eagle through the pass and stood indeed on the highest crest of the Mountain of the South, the storm cleared away as if by magic, and far beneath me I saw the Mountain spread out, and beyond the Mountain a smiling valley—like Alvrosdale, but broader and deeper. Through the heart of it trailed our own river—Outer Dalalven—after it had burst foaming from the rocks beneath the mountain. Beside it was a white ribbon of a road that ran off into the distance. Along the road I could see the habitations of men, gleaming in the afternoon sunlight, and forests that ran down almost to the houses and at times hid the road. I shouted for joy at the prospect and began the descent of the mountain; for in that moment I knew that the tales of a world of splendor were based in truth.

CHAPTER II

Beyond the Mountain

"HALF an hour later I shot a ptarmigan amid the snow and so tasted meat for the first time in three days. This was the greatest luck, for the descent was worse than the climb on the other side had been. For a day I floundered amid the drifts, and came at last to a place that dropped sheer for half a mile. There was no descent, so I had to turn back and try this way and that. Three days I spent thus, going down and coming back, climbing and descending, before I deviously reached the bottom. On the second day I tasted once more the kindness of the gods, for my foot touched a stone that touched another and suddenly set off a landslide that cleared my path down the worst of the steeps.

"At last I stood at the base of the mountain, a place by no means lacking in piled rocks, but with no more dizzy descents. For a time I lay on my face, prostrate, and clasped the fair grass with my bruised hands—grass that felt softer to them than after the longest winter! Then I arose and, with such strength as I had left, staggered to the brim of Outer Dalalven and plunged my face in the water; then by the brim of the stream I fell asleep, though the sun was still high in the heavens.

"I woke in the chill of dawn, with the memory of a sound ringing in the back of my head. As I started to my feet, I heard again the sound that had roused me—the baying of a dog—and in a moment it was answered by multiple voices, as when a pack of our Alvrosdale hounds course on the trail of a rabbit.

"'Surely,' I thought, 'there must be men not far away in this dale, since there are men's dogs here,' and I climbed up onto a boss of rock the better to see my way and the dogs that had sounded. As I reached the crest of the stone, the hounds swept into view from the road not a hundred paces to my left, and came tearing along among the stones

—dogs indeed, but such as I had never seen, strong and terrible of aspect, and not on the trail of a rabbit, but of a great antlered deer. In a moment they were past, but two of the later members of the pack paused when they came to where I had passed, sniffing and growling over the place where I had slept.

"'IF all the Angleak are as great as their dogs, then theirs is indeed a mighty race,' I thought. The road itself was curious, all overgrown and the stones pushed apart by grass and weeds; and the dried grass of other summers lay among the fresh, as though it had been there for a long time. Yet I mused not overmuch on it, for the road led up under the Mountain of the South, and all men knew how that hill had risen between Alvrosdale and the world in a single night, breaking sheer across the road and all else.

"Perhaps a mile or two further along I saw houses clustered in a hamlet between road and river. Among them all there was no sign of life and while it might have been the earliness of the hour, I remarked it because of the other signs of desolation on that journey and my heart misgave me. And as I drew near I was more surprised than ever, for in all that village, which by the legends of the dale should have been a great and splendid place, there was neither sound of voice, bark of dog, nor sign of smoke in the chimneys. A fear came upon me, and I ran forward, weak as I was. But at the first house my fear was confirmed. The door hung all awry with rust marks at its side—the doorsill split and dug up by the frosts of winter, and the broken windows looking in on ruin and desolation.

"I hastened to the next house and the next, and so on through the village. Some were of stone and some of purest glass, but all alike were empty; it was a village of the dead, but with no sign of dead or living. Only at the end of the village did I hear the bleating of sheep and, going to the spot, came upon a flock—not well-kept, fat sheep such as we house in Alvrosdale, but thin and lank, and their coats filled with briars. At my approach they made off toward the forest. I bent my bow against them and slew a ewe, and taking of her meat went to one of the houses, thinking to cook the meat in that ruined town; but in no house that I entered was there so much as a fireplace—all were filled with Machines, now fallen to dust and rust, and other appliances whose use I did not understand; so I built my fire in the open, using dead branches from the trees.

"The food refreshed me much, and packing in my scrip as much more of it as I could conveniently carry, I followed the road onward. Further down I came upon another House of Power, so like this that the two might have been built by the same hand; and with fear strong within me I swung wide around it, yet had no need, for like all else in this dale, it was lifeless.

The Dead City

"IT is sad to me even now in retrospect to think of coming to that place after a journey of so much arduousness. For in all that land of the Angleak I found no living man nor heard any voice save those of the wild dogs as they bayed now near, now far. For days I journeyed thus; many villages I passed, all well built and strong and beautiful, most of them made of shining glass, testifying to the glory of the Angleak. All were filled with Machines of much marvel—and all were fallen to ruin and rust, befouled by beasts, streaked with the wet of rains and rent by tempests. At night I often lay in the cellars of these houses. By day I walked, killing now a sheep and now a hog, according to my need and as I came upon them. One day I came to a place where the houses grew thicker and the forest had retreated until the village was the greatest ever seen by the eye of man. Some of these houses were like those I had heard of in legends—mighty towers whose tops soared to the clouds, built all of stone and bronze so that the tooth of time had hardly touched them. But all were dead and deserted like the rest, with only birds to nest behind the broken windows, and swine to wander among the streets of that melancholy place.

"I wandered to and fro among the streets for close upon a day, and as twilight fell I made preparations to find a cellar for the night. But as I did this I saw among the myriad towers a single one that held a light in its window. A great, fierce hope sprung up in me that living men might be here, though mingled with it was the fear that it was only a trap of the Demon Power to lure me into his clutches. However, for what purpose had I come so far in such a melancholy land—but to adventure? So I made for this tall tower as rapidly as I might through all the tangled maze of streets.

"Night had come on before I reached it. I came upon it suddenly, swinging around the corner of another tower upon a square of forest land let into that village. A fox stirred in the underbrush as I crossed this square and for a moment a dark owl soared between me and the spring moon. The tower rose before me—a mountain of stone and glass, like the Mountain of the South in size but all dark and silent behind its windows, save some four or five near the base, and a whole floor high up, from which came the light I had seen.

"I drew near and saw a flight of steps that led up to a great bronze door. It would not yield to my push, nor was there any answer to my knocking. As it was already late, I looked for a place to spend the night so that I might attempt the adventure of the tower again when day should come.

"WHEN the sun gilded the towers of the great village, I rose to try again. As before, I found the bronze doors locked fast against me; but the building was of great extent as well as height, and I did not desist, thinking there might be some other way in. I had not looked far when I came upon another and smaller door, set level with the street. This I tried; it gave a little to my push and I set my shoulder against it. As I did so, door and lock burst, and I plunged in.

"I stood in a long hall, lit dimly by the tall and narrow windows at the side of the door I had entered. At either side there was a long row of doors. With my mind now made up to follow the venture through, I tried the first. It would not open; but the trick of its movement as I pushed it showed me that it was a sliding panel door, and, slipping it to one side, I stepped in. I found myself in a room no larger than a closet in my father's house in Alvrosdale, windowless as that same closet, and very dark. The door had slid into place behind me. I groped for it, and it is in my mind that I must have touched some Machine within the wall of the room, for forthwith there rose a humming sound, and when I put my hand out again, it touched a wall in rapid motion. The whole room was moving! . . . My friends, you cannot understand the terror of that moment; for I felt that I was in the very grip of the Demon Power. Though Power is an old and feeble demon now, in those days he was strong and malignant."

The old man paused and from the hand of one of the elders took a fragrant draught of mead; and when he paused, a low sigh of interest and excitement ran around the hall, for all those folk had been brought up to fear Power and Machines as the most deadly of things.

"In real life men do not faint or go mad with terror, when in such situations," said the old man, beginning again. "They seek for some means of escape. But even as I sought to escape from that moving room, there came a louder hum and it stopped as suddenly as it had moved. A shaft of light filtered in at the top and showed me that it had stopped before a door. I flung it open—anything was better than that small moving closet. I stood in a long hall with sunlight streaming through the glass walls and reflecting back in dazzling radiance from row on row of great ingots of silver.

The Silver Men

"So much wealth neither I nor anyone in this dale has ever seen. Yet there was something curious about those ingots, when I looked at them a second time, for each one was laid on a table by itself, and each seemed rather a close winding of many wires than a solid piece of that precious metal. Dumb with astonishment at the sight, I stood for a moment, and then approached one of them, thinking that they might be a dream wrought for my undoing by the Demon Power. I noted that the form of the silver winding had, from a little distance, a certain likeness to that of a man, from one side of which many of the wires were collected and twisted through holes in a slab of stone on which the form lay.

"The likeness to the form of a man increased as I approached, and when I came and stood directly over it, I saw that it was indeed a man, but a dead one—all swathed and wound in silver wires which, as they drew near his body, drew into finer and finer wires till right over the skin they were spread out like silver spider webs, half-concealing his features. The dead man had a grave and reverend aspect, like a priest of the gods; no hair grew on his head nor beard on his face, for even here the silver wires lay over him.

"All this I took in at a glance, and in the same moment the thought came over me that each of these piles of silver was a man, dead like the first. I stepped back in horror. As I did so, my hand touched the tangle of silver wires from one of the dead, and all up my hand and arm ran a tingling jar! At the same moment the dead man before me stirred ever so slightly. With the horror of that moment my tongue was loosed; I shrieked and fled. Around and around the room I ran, like a rat trapped in a cage. At last I reached a door and flung it open, not on another narrow room, but on a stair, and up this I fled without taking account of direction . . .

"You will understand that, although the place is of ill omen and hence forbidden for our folk to approach, it is in no wise deadly; but I did not know this. I thought that these living dead were under the shadow of the Demon Power and that the jar I had received was a warning not to disturb their sleep, lest I become like them . . . But the staircase up which I fled gave on another hall, filled, like the first, with row upon row of those living corpses, lapped in silver. As in the hall below, the walls were all of glass; and the coiled silver cables, where the thin wires of this most precious metal united, were twisted from the sides of the sleepers and passed through holes in the slabs.

"Yet all this I hardly noted, for I fled again, and so to another hall, and another, and yet another, up and down the stairs seeking only to leave that accursed place. I do not know how long I ranged thus up and down. I only know that at last, stumbling downward, I came to a door that led upon a long passage. Down it I went, though it was narrow, and at one side a Machine hung over the edge of the passage to grip the passer-by the instant the Demon Power should will it.

CHAPTER III

The Man with the Metal Mask

"At the end the passage divided in two. Not knowing which turn would lead me from the building, I chose the right, but had hardly gone twenty paces when before me I saw the low flare of a light and heard a mighty clanking. Surely, I thought, this is the very abode of the Demon Power himself, and I turned back with a new fright to add to the old.

"This time I took the other branch. As I went down it I again saw a light ahead—but to what purpose would it be to turn back? Moreover I had now somewhat gained control of myself, and so, saying—'A man who is fated to die will surely die, whereas a man fated to live shall walk through perils,'—I strode on. And lo! the shaft of light came from a room, and near the door of the room sat a man, a veritable living man in a chair with a board before him, on which he moved small carved figures. As I entered, he turned to me a face that was not a face, but a metal mask, and said some words to me in a tongue which I did not understand. Overcome with fatigue, I fell at his feet. . . ."

Again the old man paused and drank a draught of mead, then seated himself for a brief space, while in the Hall arose a whirr of voices that were stilled again when he rose once more.

"When I awoke I was lying on the floor of the room where I found the man with the metal face, and it seemed that he looked upon me with kindness. In his hand he held vessels, which he extended to me, making signs that I should eat and drink, and though the food was strange I ate and was refreshed. I spoke to him quickly, asking what this city of the living dead was, and where were the people of so glorious a town and what had become of the Anglesk, but he only shook his head and sat down again to his board, which was marked out in squares of alternate black and white. Then, taking one of the carved figures from the board, he held it up to me, and said—'Rook.' I examined it—it was in the likeness of a tower of stone—but it conveyed no meaning whatever to me, so I handed it back with a smile for his courtesy. Therewith the man with the metal face sighed deeply and motioned me to a seat beside him, while he went on moving the carved figures here and there, making notes on a piece of paper he held in his hand the while.

"I looked about; the room was long rather than wide, and along one wall of it ran a great board, from which loops of wire jutted, entering into little holes. Presently a red light shone from the board and the man with the metal face rose, and with slow and halting steps, like one of great age, went to the board and transferred one of the loops from one hole to another; then returned to his table.

"For a long time I waited, watching the man with the metal face. He said no more—nor did I. But after a time he arose and, motioning that I should follow him, led me through the other end of the room. There he showed me a bed; it was narrow and low, and covered not with blankets but with a single web of a weave marvellously fine and softer to the fingers than anything I had ever touched. The room was filled with a pleasant fragrance like that of the woods in spring, though there was no window and we were far from the trees.

"He signed that I should lay myself on the bed, and when I had done so he brought forth from some corner a Machine like a cap, fitting close to the head, with special parts to cover the ears, and this he placed on my head. I started

back in fright at it, for I thought it some new device to trap me deeper into the lures of the Demon Power. But the man with the metal face spoke kindly, and placed the cap on his own head to show that no harm was intended.

"With that I lay down on the bed and slept, and knew no more, though my sleep was shot with dreams in which the living dead rose and spoke to me in the tongue of the Angleak, and told me of frightful things. . . . To you, my friends, it will seem strange that men should speak in another tongue than ours. Yet so it was in the days of the Angleak, that different men in different dales had different words for the same thing and could no more understand one another than we could understand the babbling of a child or the bark of a fox.

"In the morning I awoke fresh and rested after my sleep. The man with the metal face was bending over me, and as I sat up in the first wild surprise at finding myself in this so unfamiliar place, he bent over and detached the Machine I had been wearing through the night.

"'Do you play chess?' he asked; not in our own words, but in the tongue of the Angleak of old; and, wonder of all wonders, I understood him.

"'What?' I cried in astonishment. 'How is it that I now understand what you say, though it is in a different way from our own speech?'

"'Oh, that is the radio helmet,' he replied, treating the matter as one of no import. 'But tell me, do you play chess?' His speech was thick and slow, as though passed through lips unable to properly form the words.

"'Chess?' I answered. 'I don't know the name. Is it a game of the Angleak?'

"The man with the metal face sighed deeply and half to himself said: 'And for twenty years I have been bringing my Sayers gambit to absolute perfection—my legacy to the world.' Of this I understood nothing, but he said aloud: 'Yes, I am one of the Angleak, as you call them, though our name is the English. I am the last.' And again the man with the metal face sighed.

"Questions rushed to my lips. 'Then what does all this mean?' I asked. 'Who built this glorious village and these shining towers with the spider-like bridges from one to another, and where are those who should live in them? And who are the living dead that sleep above?'

"'They are the English,' said the man with the metal face, 'all that are left of them. Now let us eat and I will explain it to you; but first you shall tell me how you came here, ignorant of Machines and civilization, and yet with a white skin.'

The Tale of the Machine Man

"I FELL in with his humor and with him partook of his curious foods;; then sat in the room of the board and table, where ever and again the red light flashed and the man with the metal face ceased his talking and changed a loop of silver wire from one hole to another. I told him of Alvrosdale and of our life there; how we hunted and tilled the ground and tended our flocks; and of the Mountain of the South and how I had climbed over it with the aid of the most high gods. It was a tale of which he did not weary. He plied me with meat and drink, and learned what I knew. Then he told me his tale in turn, which I will rehearse to you."

At this saying the old man paused again, and again drank from the mead-horn. And as he began the tale of the man with the metal face, the hall was hushed to hear him.

* * * * *

"'Know, man of Alvrosdale (the man with the metal face told me) that I am of an age compared to which you are but a babe in arms, for I count beyond a hundred summers, and so does the least of those sleepers above. Much have I seen and heard and read, and of one thing I am sure—that you are a part of a race which for thousands of summers has been shut away from the progress of civilization. You have no business in this dying world today, and when you have heard how it is with us, you had best go back over your mountain, there to stay. Or perhaps you will gather companions, and out of your dale come to people a new world.

"'Know that long centuries ago—about the year 1950 A. D.—the world held countless hundreds of millions of people. There were men whose skins were black, and men with yellow skins and even with red skins; but they were mostly barbarians, and hence I was surprised at your own arrival, for I thought all the men with white skins had died long ago. The men with white skins were, in truth, the greatest of peoples; they had spread out and conquered all the rest of the world, so that the black and yellow and red men toiled for them. Now of all the white men, the greatest were the English; they moved fastest and strongest across the face of the earth; they founded colonies, and the colonies themselves grew to be greater than other nations.

"'In elder ages men quarrelled, this group and that, and fought destructive wars in which thousands were slain by the use of guns, which hurled great pieces of steel that rent and tore asunder all that stood in their path. But among the English and the colonies of the English were many great scientists. These scientists designed Machines called Radio, fashioned so cunningly that a man had but to speak in them to be heard afar by many men in other lands. Now in the days of which I speak, the English spoke into their Radio and their tongue spread across the whole world. Then the quarrelling of nations ceased, for there is no quarrel that may not be settled by simple words when men may speak these words understandingly to one another.

"'THAT was long after the Mountain of the South had risen to shut off your dale. The people of your dale may have heard of the wonders of our civilization, though it is not likely. We had Machines that flew through the air and bore many passengers across the oceans: Machines that grew crops for us, tending them carefully and driving away the insects; Machines that transformed these crops into food without the intervention of hands. We built great cities, of which this is one of the least: cities of majestic buildings, all of glass, in which men lived lives of ease and pleasure. Pleasure! That was the cause of the whole tragedy of our world. We did not know that the pursuit of pleasure alone, which had been our guide, was to be our ruin.

"'Can you imagine, barbarian of Alvrosdale, what it is to be free from the necessity of earning your bread? You cannot—for you belong to another age and another race. But the English all over the world, and the men of other races who had become English, now had nothing to do. The sources of Power were so inexhaustible, and the amount of work necessary to make them available so slight, that half an hour's labor a day sufficed to earn a man his living. And the Machines continued to grow ever more complex and more ingenious.

"'Adventure, which is the pastime of many men, disappeared when war became obsolete. For some people, art filled the vacant hours. But as the scientists grew in knowledge, the Machines they made executed the arts better than the artists themselves. Music was the first of the arts to disappear. First there were Machines that recorded the performances of great musicians and reproduced them to all hearers at any time. Then came Machines that gave

these reproductions to vast audiences, and others that showed the audiences such lifelike pictures of the musicians that they seemed to be present in person. And finally Machines were invented that altogether eliminated the musician, striking the correct tones and shades of tones with scientific accuracy.

"'The picture Machines, that brought an end to music, were the beginning of the end of the art of the theatre—you hardly know what a theatre is? It is, or was, a place where people acted stories. With the going of theatres, too, there were fewer and fewer artists, and finally we had only more puppets. Sculpture, which was a kind of carving, was the next art to cease. The scientists made Machines that felt gently over living persons and carved their likenesses out of enduring stone or wood.

CHAPTER IV

Adventure is Dead

"'BUT why tell you more? You have heard enough to understand that art, the last refuge of men of leisure, was destroyed by the very Machines that gave man the leisure to enjoy art . . . So it was with everything. Adventure of all kinds died. The last depths in the earth were plumbed, the last mountains were climbed or flown over by the might of the Machines. Men even made Machines to travel to the other planets that circle around the sun; they went to them, found them all inhospitably hot, cold or airless.

"'And even here the Machines did away with all those occupations which provide adventure; for adventure is always the outcome of some lawless act, and the scientists had eliminated lawlessness by eliminating criminals soon after the coming of universal peace. Machines tested every child psychologically and supplied the proper remedies to make him a good citizen. . . .

"'You must picture, my barbarian friend, a world in which Machines had deprived men not only of labor, but of amusement, of adventure, of excitement—in short, of everything that makes life worth while. Oh they were terrible days of boredom! What was left? Only the frantic pursuit of artificial pleasures. And men did pursue pleasure to a degree which seems fantastic to even me. Men became connoisseurs of odors, of clothes; I, even I, have spent a month's income on a new perfume, and a thousand dollars for a single piece of cloth of original design. . . . But even here the Machines followed us, doing things better than we. We had nothing but leisure—endless, meaningless leisure.

"'THEN the institution of Adventure Insurance arose. It began with a Japanese named Hatsu Yotosaki, who was hired to furnish new amusement—'thrills' they called it—to a party of rich Australians who had gone on an extended air voyage over Antarctica. This Jap conceived the idea of letting each member of the party know, indirectly, that some other one of the party was a criminal lunatic who was scheming to murder him. Long before their six months' cruise was up, they were all eying each other with suspicion and fright, prowling about the corridors of the airship at night and doing all the things men do under the influence of fear. Three of them were even killed by mistake.

"'When they got back to Melbourne, Yotosaki told the survivors the story of how he had manufactured their fear and fright. Instead of jailing him for murder, they hailed him as a deliverer, the founder of a new idea. The idea was taken up with enthusiasm, and everywhere men were hired by others to involve them in wild and impossible, often bloody, adventures.

"'But even here the scientists tried to intervene with their Machines. Why, they argued, go to all this trouble and expense to provide adventures for oneself, when one could obtain them second-hand by attending the mechanized theatres? The answer of the public was that the second hand adventures of the theater were insipid, being without the element of personal contact; they gave the spectator none of the personal thrill that is part of a real adventure. This led to the formation of great companies to furnish adventures to people.

"'Now the governments of the world grew worried, for with the coming of universal freedom from labor, pleasure and its pursuit had become the main concern of government. They accordingly set the scientists to work to find an antidote to the adventure companies, which had succeeded in eluding government control . . . The result is what you see! This building and these people that you call the living dead.

"It did not come all at once, young man. You see only the finished product. At first the scientists sought only to make their mechanized theaters more perfect. They had already perfected sound and motion in the early ages; to this was now added a device that added the sense of smell; if the pictured story was laid in a woodland the scent of piny branches swept through the audience, and if at sea, there was the tang of the salt spray.

"'But the people tired of these shows; they came and were amused for once, but never came again. The scientists then produced the sensations of heat and cold—people went to winter pictures wrapped in furs as though for a trip to the arctic regions; vast artificial winds stormed through the theaters to the tune of the swaying boughs in the pictures; clouds of smoke and tongues of veritable burning flame were rolled out over the audience; and at last devices were introduced which gave the sitters gentle electrical shocks at emotional moments in the performances.

"'And now came the great discovery. It happened that a man had had his hand cut off in an accident. It had been the custom previously to provide such unfortunates with artificial limbs of marvelous ingenuity and dexterity. Now the man's surgeon, whose name was Brightman, suggested a metal hand which should be controlled by silver wires; and that the ends of the silver wires should be drawn out exceedingly fine, and attached to the nerves controlling the motions of the fingers. The nerves of the body are themselves like wires; they carry the messages of the brain to the muscles and of the muscles back to the brain. What Brightman was proposing was that the brain should deliver its message to the artificial metal nerves, thus causing the metal hand to move as a live hand would. It was his theory that all nervous impulses are delivered by electrical means, and if this was true the process would work.

"'THE theory was not new, nor the idea; but previously there had been lacking any means to connect the metal wires to the nerves. This time it was done by the process discovered for building up human protoplasm; the connection between the silver wire and the nerve was made; it was placed in an electrical bath and given an atomic bombardment; and behold! the connecting end of the silver wire became itself a nerve wire of the same material as the rest of the nerve!

"'Thus the plan worked—at first, not well nor rapidly, but it worked. And as it was tried in succeeding cases, it worked better and better until a perfect artificial hand could be produced that was as good as a new one. . . . The next step came when the plan was applied to a man who had hopelessly lost his sight. Back of each eye is one of these nerves, which carries the message of what you see

to the brain. For this man they made a new pair of eyes, fitted with Machines called photo-sensitive cells, such as those I bear on my own face. In them is a marvel-metal called potassium, which, when light falls upon it, changes in resistance to an electrical current. Thus, for every speck of light there was a change in the electrical current that ran through the Machine, and the change was communicated to one of a set of wires, which in turn communicated it to the nerve of the eye. Then the man, though without eyes, could see!

"'In time, this grew to be the common treatment for those who had lost their eyes, just as mechanical hands and feet replaced those members. And to one of our scientists (Professor Bruce) there came a new idea: If a man could by these means see what really happened, why should he not see also things that have never occurred? . . . Do you understand?

"'After a long experimentation Bruce found that if the photo-sensitive cell of a blind man were removed, and the silver wires that led to his optic nerve were attached to other wires, electrical currents could be sent down these other wires that would make him see things that were not actually there at all.

"'All this was before the adventure associations sprang up. At the time these associations came into being, the scientists had achieved so high a state of perfection with the device of providing blind persons with sights they did not actually see, that the result was, the blind could be made to see almost anything, even a whole series of non-existent events.

CHAPTER V

A Drastic Experiment

"'THIS was the situation when the growth of the adventure associations began to threaten the basis of organised government. For the adventure associations promoted disorder among those very elements of the people who should most desire security. The head of a great food company, for example, was involved in an adventure. In the course of it he was attacked by several men who struck at him with clubs. One of them struck a trifle too hard; the food company head was killed, and his company suffered from it.

"'In an evil hour, some scientist suggested to the New Zealand government that the people should be offered plays they could witness through their optic nerves, and thus experience them as actual. This would be a substitute for the adventures of the associations. The government accepted the suggestion. It would necessitate removing the eyes of the subjects, and providing them with photo-sensitive cells. A man who trusts his whole life to an adventure association would certainly be willing to submit to the slight inconvenience of seeing through a mask instead of through his eyes for the rest of his life.

"'At first there was no great rush on the part of the people to accept the operation. A few did so, and gave glowing accounts of the results; but to submit to an operation whose results would be permanent for the sake of a few hours or even days of visual pleasure did not appeal to the majority. But it was at once apparent that if electrical impulses could be arranged so that the subject would see things that were not in existence, others could be similarly arranged to reach the senses of smell, and even of feeling, taste or what you will. Like the original operation on the eyes, the process of development was slow; it was over a hundred years from the time when the New Zealand government first offered its citizens operations on the eyes to the date when the completed Adventure Machines such as you have seen were produced in all their complexity. The type of electrical impulse to produce the desired sensation on every nerve had first to be found, then applied, and finally woven into a complex record to be placed in a Machine with other records to provide the Machine Adventurer with a complete series of sensations.

"'THE final process was that the subject was operated upon by skilled surgeons. Every nerve in the body was laid bare, one after another; eyes, ears, nerves of feeling and taste, nerves of motion. To each was attached the tiny silver wire, and each was given the atomic treatment, then led down with the others to form a cable. During the first part of the operation the subject was placed under anaesthesia, but at the end, until his record was connected up, he experienced no sensations at all; he merely existed in an inert state, devoid of animation or feeling.

"'As one set of nerves after another yielded its secrets to the scientists, the government Adventure Machines began to grow popular. They had enormous advantages over the adventure associations. The associations offered personal adventure that was often deadly; the Government Machines were absolutely safe. The adventure associations were costly; the Government device cost nothing, for when the subject submitted to the operation he was regarded by the courts as legally dead and his property passed to the Government. The adventure associations could offer only violent, physical adventures; the Government method could give the adventurer whatever he wanted. They could enable him to get the most out of life in whatever way he wished, for records of every sort were prepared, suited to the psychology of the individual.

"'Thus if the operator wished to make the Adventurer feel that he was hunting, the record of a hunting adventure was placed in the Machine, and the cable leading from the adventurer's nerves was connected to it. The nerves of the adventurer's foot would assure him that he trod the mould of the forest; the nerves of his eyes would bring him a vision of the dim vista of trunks and a wild animal bounding through them; the nerves of his hands and arms would tell him he was making the correct motions to take aim and bring the animal down; and through the nerves of his ears, the Machine Adventurer would hear the dying scream of the beast he had slaughtered.

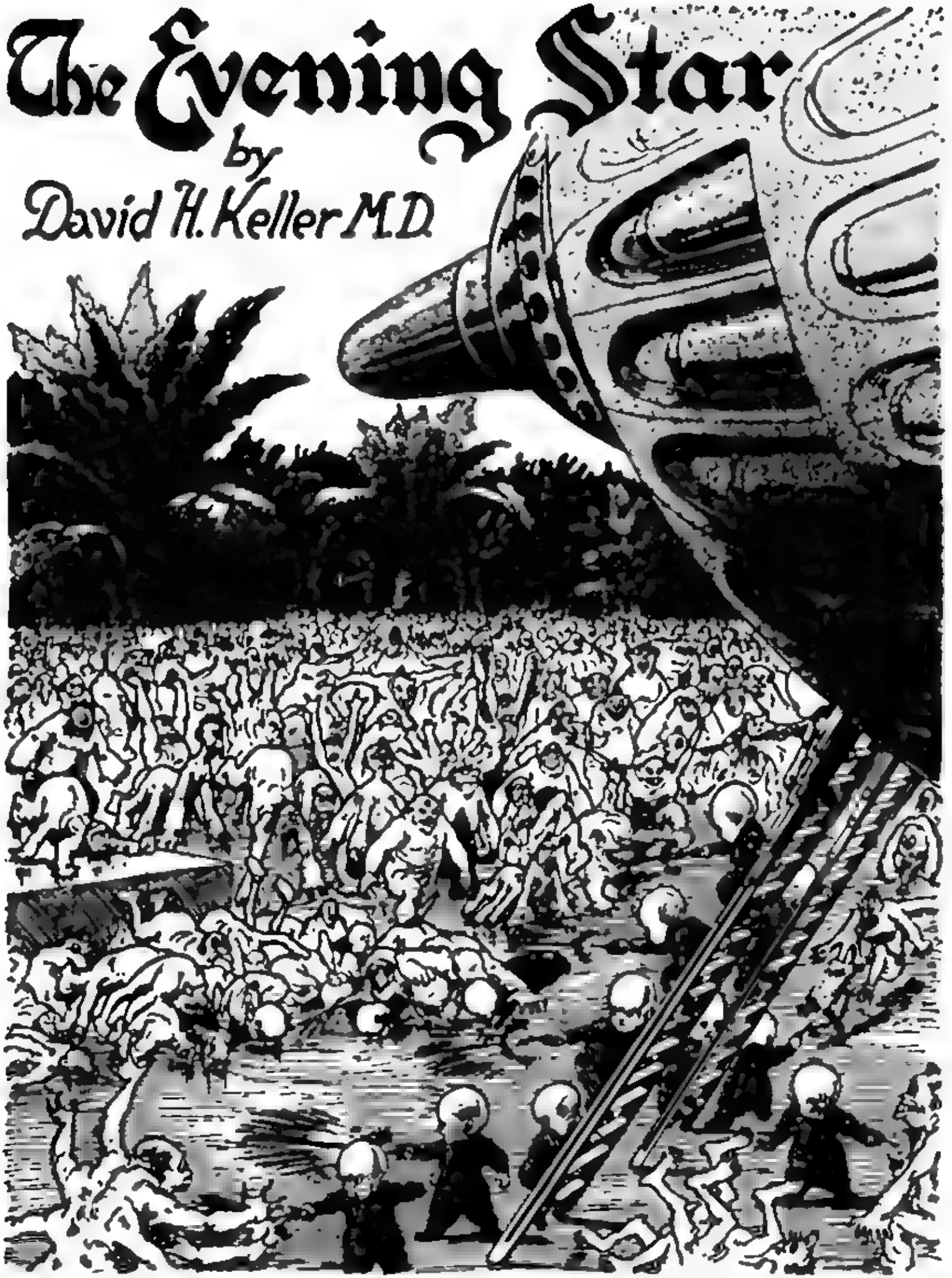
"'THESE records are of an immense complexity; all the lower stories of this building are filled with them. It would not have done to make them too simple, for in that case the Machine Adventurer would have done better to have joined one of the associations. As it was, the Machine Adventurer chose his general type of adventure; his psychological charts, made when he was young, showed the type of mind he possessed, and what his reactions would be in certain cases. With the charts and his choice before them, the Government operators would lay out a course of adventures for him, and after the operation, he would pass through them in succession. There was a large number of adventures to choose from. Did he, for instance, wish to know what the distant planets looked like? In that case he would be given an adventure in which he was the head of an expedition. Under the spell of the Machine he gathered men and materials; with his own hands he worked on a space ship; he saw friends and companions about him, and all his senses reeled to the shock as his ship sprang away from the earth. He even felt that he ate and drank during the trip, for the nerves of taste and digestion were connected up as well as the others. At last he saw the new planet he was to visit

(*Continued on page* 1136)

The Evening Star

by

David H. Keller M.D.



(Illustration by Paul)

Around the ladders stood a small guard. From each dwarf darted the Jovian bolt and for every bolt a Monster stumbled and died. But the others just rushed on.

By the Author of "The Human Termites," "The Conquerors," "The Boneless Horrors," etc.

What Has Gone Before

Sir Harry Brunton, a member of the nation of Conquerors, induces his friend, Percy Whitland, an eminent astronomer, to join the Conquerors on a projected trip to Venus, and the Conquerors discover that Whitland has some of their blood in him. Whitland believes that Venus is inhabited by sentient beings and convinces the Conquerors of that. Before they are ready to start, they receive a strange message over the radio, which Whitland discovers has come from Venus, telling them, "Follow 85." Whitland discovers that 85 refers to the missing element of that number and he is convinced that intelligent beings on Venus want the expedition to come there. Then they receive a second message, "Guard against 87," which he discovers to be a warning against an element with atomic number 87. On the journey to Venus, the ship is constantly drawn off its course by a pull from Von Maanen's star, which is associated with element 87. But the ship finally manages to land on Venus. Sir Harry's fiancée, Miss Charlotte Carter, becomes weary of the inactivities of the Conquerors on Venus and goes off alone for a walk into the Venusian forests. There she is captured by some strange monstrosities, who resemble human beings. Then the monsters suddenly begin to drop dead and there approaches her an oddly shaped being who, to her astonishment, speaks to her in perfect English!

FOR the first time in his life, Sir Harry Brunton had undertaken an exploration into the unknown without proper preparation. Under ordinary circumstances he would not have dreamed of venturing into the fern forest without carefully weighing all the possibilities and providing for them. He would have prepared for his provender, equipped himself with a blanket, matches, a compass, and some extra clothing.

But when he saw Charlotte striking off alone into the unknown without a companion, and realized that he was partly responsible for her action, he was beside himself with fear and anxiety. He regretted the moments he had lost in going back for his revolvers; yet in spite of his panic and haste, he knew that he ought not to go into the gloom without them. With the exception of these he took absolutely nothing with him but the clothing he had on his back.

He dashed into the depths of the forest. Although the sunlight shone mellow and warm on the marble landing-field, it was hardly sufficient to penetrate the thick, interlaced fronds of the gigantic ferns. More than once he stumbled over a root in the semi-darkness and came near being thrown to the ground. In some places the ground was smooth and hard; in others, the leaves of centuries formed a soft blanket into which he sank up to his knees before he was afforded a firm footing. There was no noise except the constant rustling of the wind-swept fronds a hundred feet above the ground. He pushed on and on, pausing now and then to call the name of the woman whom he had loved and lost. Then he struggled on again. Finally he sat down breathless to rest. By force of habit he pulled out his watch and saw that he had forgotten to wind it. Then he laughed as he realized the meaninglessness of the old measure of time on this new world. The position of the sun was of no help either, for it shone with the same intensity continually. And then this expert in tracking the pathless wilderness of the Earth realized that it would be hard for him to orient himself by the compass and perhaps might be impossible for him even to find his way back to the space car.

"My word!" he exclaimed to himself. "That's what love does to a man! If we hadn't loved each other, we wouldn't have quarreled and if I were not in love with her, I never would have come off as I did without food or anything else except these two revolvers. They will be like so many popguns if I run into any real danger."

He decided to wind his watch, start it at 6 p.m. and try to secure some sleep. He intended only to rest an hour. When he awoke it was six o'clock and the watch was still running. That meant that he had slept either twelve or twenty-four hours. Cursing, he realized that those lost hours might have saved Charlotte if they had been rightly used. Drawing his belt tighter, he started out on his apparently hopeless search. He had made up his mind that if he could not find the woman he loved, he could at least stay there in the forest and die with her.

He pushed on at an uneven pace for some hours. Then, suddenly, he heard her calling him—not in a real voice, but vibrations impinging on his higher psychic centers. She was in trouble, in danger! Death faced her, and he could not help! He could not even be with her so they could die together. Frantically he started to run—calling to her, telling her he was on his way, that he was near her; he ran till his breath came in great gasps, ran till fatigue forced him to walk, walked till he stumbled and fell into a great oblivion.

When consciousness returned, he saw that he was no longer in the forest. Above him the sunlight fell through thick glass windows. Around him were tables and chairs, and the walls were lined with shelves. He felt around him with his hands and found that he was on a thick rug. Hastily he sat up and looked around the room. Marbled

DR. D. H. KELLER

WE come to the concluding installment of this marvelous sequel to "The Conquerors." In this installment, we meet with many strange forms of life, some of which may seem to us to be impossible. But before we conclude that finally, we must realise that Nature works in many strange ways, and the evolution of plant life, so that it can move about and perform some of the functions of animal life, is not at all impossible.

This story, as usual, contains page after page of thrilling adventure and we can leave the story of the great nation of Conquerors perhaps with the moral that what constitutes greatness in one part of the universe may lead to destruction in another.

Surely, as one reads the last line of this great story, he cannot help but feel that Dr. Keller has written a work that will be long remembered.

This story began in the April issue. Back copies may be obtained for twenty-five cents each.

walls curved upward to join, in an uninterrupted arc, a ceiling composed of alternate segments of marble and glass. It made him feel as though he were at the bottom of a hemisphere or of a large inverted cup. The air was warm and pleasantly perfumed. On all sides the strange furnishings pointed to refinement and culture. Here were many evidences of life that knew how to enjoy the better parts of existence.

Then, as he continued to make a rapid inventory of the room and its contents, he saw something seated at a table. It required some moments of concerted observation to satisfy the Englishman that it was alive, and far more time than that to figure out just what form of life it was. Always Sir Harry had been accustomed to associating the highest type of life with the human body. His contact with the Conquerors had taught him that this human body could be changed in a thousand details, and yet, even as in the case of the Conquerors, be but an advanced type of the human race.

But this thing that rested on the chair seemed to be simply a sack, a sausage, covered with a thick skin. There was no head, there were no extremities. Thirty inches long, twelve inches wide, it was devoid of curves except for a gentle rounding of the top. The chair on which it rested was about fifteen feet away from Sir Harry's couch. At last he satisfied himself that the entity exhibited a slight movement, a regular pulsation sufficient to cause an alternate enlargement and shrinking of the entire body. Slowly rising to his feet, the Englishman walked cautiously over to the chair. As he walked, a sphere budded on the top of the strange being; it swelled rapidly and in the process developed something that looked like an eye. At the same time another bud on the right side grew into a pseudopodium* that might be considered to resemble an arm. Two more extremities burst forth at its base, and it jumped off the chair and spoke.

"Do you feel refreshed from your sleep?"

The voice was in English, the prounuciation almost perfect and the words rather softly intoned. It came from a slit in the thing that might be considered a head. Sir Harry looked at it in astonishment, for the moment too dazed to reply.

"My word, yes!" he said, finally. "Have I been here long? Have you any idea how I came here?"

"My Master will tell you everything. I was to stay here till you awoke. Perhaps I will be your servant. All of the Old Ones have servants. You look like an Old One. It was the resemblance that made the Master dare to bring you here."

The thing moved out of the room, and as it did so the new arm shriveled till it re-entered the body, leaving no sign that it had ever been there.

Sir Harry wiped the sweat from his brow.

"New forms of life! My word! I should say so. Now that thing can move and talk and act like a faithful watchdog, and yet, where does it come in the scheme of zoology? What is it? Man, animal, or homunculus?** First it is a sausage, then a headed cyclops, without legs or arms. Then an arm or two legs sprout, and at last no arm remains. That is unusual, to say the least. I wonder what Charlotte would make of it?"

The thought of Charlotte recalled his recent hours of torture. He must go on, and on. Now that he was rested he must again enter the fern forest, to find his woman if alive, and bury her if dead; and then, if possible, revenge her death. Desiring to leave, he must see at once the person who had befriended him and perhaps saved his life. Sir Harry wanted to thank him and then leave. But just at that moment someone entered the room. If Sir Harry had been forced to guess the shape and nature of this Master, he would have failed, for the sausage thing had prepared him to see something strange and unusual, something weirdly fantastic. To his surprise, however, he saw just another man!

BUT what a man! A Greek god come to life—a marble statue, carved by Phidias, filled with life, ensouled by a human being. Here was a beautiful body, with long, well-proportioned limbs; a head lovely in its shapeliness, covered by a mass of tightly curled yellow hair; blue eyes that twinkled a friendly welcome. He wore golden sandals, purple shorts and a white sleeveless vest with a scarlet monogram worked on it. This was the Master! Sir Harry nearly lost his poise. The man was large, quite as large as the Englishman, but far more perfectly built in every way.

"Do you feel better now that you are awake?" the stranger asked, in English. "I presume you prefer to talk in your mother tongue, or would you prefer French, Latin, or Carthaginian?"

"I slept soundly," the Englishman almost stammered. "It was good of you to bring me here. I was all in, completely done for. You saved my life."

"Yes, it was fortunate that my servant found you. It was strange to find you there, and to observe that you resembled us so closely. We had reason to think that you would, but it was a slight shock to me to find that you are really like the Old Ones."

The Englishman smiled.

"I guess we must look alike. Good of you to care for me, but if you could give me a bite to eat, I would thank you and go on."

"Better stay. I have a lot of things to talk about."

"That is just why I must go on. It's just because I talked so much that I am here this minute, and my fiancée may be in need of help or even beyond help—dead. I talked too much and what she wanted was a little more action."

"Was your fiancée a white-haired woman?"

"Yes."

"Well, if that is the woman you are worrying about, you can become easy again. One of my race has sent out the message that he has her safe in his house. I don't know the details, but there is no doubt about her description."

Sir Harry walked toward the Venusian, almost shouting.

"Wonderful! By Jove! When can we go and get her? Where is she?"

The Venusian smiled at his eagerness.

"I'm afraid you will have to be a little patient. We cannot do things quickly here. In fact, the effort to keep a race alive on this planet is a great deal more of a task than it may be on your Earth. Our race is nearly exhausted by the effort. It is many, many years since a child has been born in one of our families, and were it not for our servants, we should have been absolutely powerless to prevent our utter destruction by our enemies. As it is, we are very few in number—not more than fifty at the most."

Sir Harry was perplexed at this sudden revelation. He showed it in his reply.

"Do you mean that there are only fifty persons living on this planet?"

"I said fifty of our race. Oh! There are millions of other forms of life, and there are our servants, and some races that live on the dark side of the planet, concerning which we know but little. For thousands of years we have had to battle for our existence, and even now our enemies are occasionally able to capture one or two of us. A very dear

* A temporary projection of the protoplasmic substance of a cell, used for feeding and moving about.

** A very undersized man or manikin.

friend of mine had his mate taken away some years ago. Poor man and poor woman! We found out only yesterday that they had killed her in the usual way, and I think that it is going to cause my friend to pass out of this life himself. To explain that, I might say that none of us ever dies a natural death, but now and then something happens that makes life undesirable, and when that does happen we feel that there is no disgrace in suicide."

The Venusian Explains

"ONLY fifty living?" repeated Sir Harry in astonishment.

"Yes. Probably only forty-eight now. Twenty-four men and twenty-four women in twenty-four homes like this. Some of us live great distances apart. The Old One who is now protecting your earth woman is my nearest neighbor, yet the dangers are so great that a journey can not be made there without certain time-consuming preparations. You must be patient and happy, knowing that she is safe. Suppose we have something to eat? Our food is no doubt different from what you have been accustomed to, but it is very wholesome and, as you see, we thrive on it. Will you accompany me to the lower floor? My mate is there, waiting to assist in your entertainment."

"All this is just too fine of you," remarked the surprised Englishman. "May I compliment you on your excellent use of English and ask how you became so proficient?"

"That is easily explained. We have been in communication with your Earth for a long time. Many years ago we learned how to pick out from the endless roar of the music of the universe the sounds coming from the Earth. At first these came as a confused conglomeration of sound vibrations, but gradually we acquired the art of selection. For hours and days at a time we would study one of the languages, Latin or Colt or Chinese. It is a peculiar fact that many of the so-called dead languages of the Earth are preserved only on Venus, as you call our world."

"There is another very pertinent question I should like to ask," said Sir Harry. "Your race sent messages to us which we were able to pick up over the radio. In these messages you made use of a lot of those old languages. Why did you want to communicate with us? Didn't you know that those dead languages were no longer being used?"

"Not exactly. Our receiving apparatus has not been working very well. All that we were sure of was that for over one hundred years a race of Earth men had been planning to make an interplanetary trip. Their language bothered us, because it was always different in some ways from all the other languages used on the Earth and, at times, it did not seem to be a spoken language at all. We believed finally that the undertaking would soon be started. We wanted to help you to come here; for, frankly, we needed you. We therefore sent the first message. Even then we were not sure what language you used; so we sent it in all the Earth languages we had learned. Is that plain?"

"Oh, I presume so! At least, it all sounds interesting. What was that Number 85 you were talking about all the time?"

"That is the metal that forms the core of our planet. Many centuries ago, when we were much stronger than we are now, we prepared for just such an emergency. A large area of our mud desert was completely undermined with high explosives. We planned to explode them when we wanted to send a guiding ray to the Earth men. Our idea was to blow the crust off a crater twenty miles in diameter, exposing the radio-active metal. It was our belief that the rays would be powerful enough to break their way through the fog that covers most of the sunny half of our world. After waiting many centuries, your planet finally developed an intelligence sufficiently great to plan an interplanetary flight. Then we felt that the time had come, so we blew off the mud crust. Our plan was very successful, though if it had not been for our warning and your ability to keep out of danger, you never would have landed here; you would have been traveling through space to a certain fiery death."

"So, you followed us all the time!"

"Yes. We hoped that when you arrived you would be like us. But—our disappointment was so keen when we saw your shipload that so far we have made no effort to form a liaison with your people. The small men with the big heads did not please us at all. For this reason we decided to let them be the ones to make the first advances. Who are they, and just what part do they play in your Earth biology?"

BEFORE Sir Harry could answer, a woman entered the room. Only slightly smaller than the man, she made a splendid figure of health, vitality and beauty. There was a serene calm in her face that spoke wonders for her poise and personality.

"You men have been talking so long that I just had to come up and meet the stranger. You must excuse the Master," she explained to Sir Harry. "He is so thrilled that one of the space travelers is like the Old Ones that he just cannot stop talking to you. Won't you come down stairs and have a meal with us?"

They went down a marble stairway, cut with exquisite precision in the rocky sides of the house. There were evidently several floors composing the building. On the dining floor a table was set, with some couches near it. Several of the peculiar servants were walking around, giving the final touch to the preparations. Against the wall leaned a few more servants, but they were in the stage of collapse. To the Englishman they looked like nothing so much as sacks of flour, held in peculiar smooth bags.

The Master saw the look of surprise with which his guest inspected these servants.

"Are they new to you?" he asked, gravely.

"New? My word, yes! I expected to be surprised during this trip, but not like that. And the most wonderful part was that the one who was watching me spoke English."

"There is nothing strange about that. Some years ago we felt that English was some day going to be the universal Earth-tongue. Of course, there was that other peculiar means of communication which is used by the small people who came with you. That was never clear to us, and the reason was simply that it was not a spoken language, but a psychic one. Anyway, we started some years ago to teach all our servants some six hundred words of English, just enough that they could converse in it a little."

"I wish Percy were here," sighed Sir Harry. "He is so deeply interested in your planet that he would appreciate all of this. I am only an anthropologist."

"You mean that you study the races of mankind?"

"That is about it."

"Then," interposed the woman, "you certainly ought to be interested in the life on our planet. Some forms may be new to you."

"No doubt they are. But, so far, we have seen none of them. In fact, everything was so quiet around the landing field that we had an idea that Venus had no animal life; that it had nothing but vegetation, like those enormous ferns."

"I don't know why you were not wiped out," commented the Master. "You see, we were a good deal afraid of the little men in your car. They seemed to be rather intelligent, but they talked a great deal about killing, and we surmised that they would not hesitate to kill us if they could. But

that was not the reason why the Monstrosities kept quiet. I think that they were just trying to overcome their fear of something new. There have been many herds of them gathering. Evidently the news has spread among them.

"When they overcome that fear, they will attack your car. We feel a certain responsibility about your people, for, in a way we wanted you to come and induced you to do so by indicating that there was life on Venus. At the same time there is something about those little men that makes us wonder if the universe would not be better off without them. The chief cause of this feeling on our part is the fact that they seem to be devoid of emotion. Do they never laugh?"

CHAPTER IX

The Monstrosities Attack

BEFORE Sir Harry could answer, one of the servants ran into the room and whispered a hurried message to the Master. The words were spoken in a peculiar soft language that reminded the Englishman of nothing so much as the sound of a babbling brook. At once the man gave a sharp monosyllabic command in the same language. Immediately the shapeless sacks, leaning against the wall, began to bud, throwing out pseudopodia which quickly developed into heads, arms and legs. In five minutes a dozen of the rapidly developed servants stood ready to meet any demands made on them.

The Master slowly rose from his couch, and gave commands with a sharp precision. It was apparent that there was no indecision or wavering in his choice of action. Servant after servant ran out of the room as if in obedience to his orders. Again the two men and the woman were alone. The Master smiled at the unconcealed interest of his visitor.

"It is nothing," he said. "At least, it is nothing to be afraid of. The Monstrosities are making one of their many attacks on the house. They have done it a hundred times before and no doubt will do it as often in the future if they continue to live on; and as there are many hundreds of thousands of them, they are not likely to die out. They have never been able to profit by the disasters they have suffered in previous attacks. Of course, they have small brains; yet it does seem as though they should remember something. Suppose we go up and look at them through the roof?"

He led the way up the winding stairs. Sir Harry allowed the woman to precede him. Once in the upper room he was surprised to find that it was almost dark.

"I thought the sun never ceased to shine here?" he asked.

"It is shining just as it always does," was the woman's reply. "But there are so many of the Monsters on the roof that they almost cover the glass windows. When they attack, they have only one idea, and that is to go through the glass. They can see through and they cannot understand why they cannot get through. So they crowd over the window section of the roof.

"When our race first began to appreciate the fact that this menace would exist in the years to come, they started to build these houses. There were just as many houses built as there were couples to fill them. We are long lived, but occasionally accidents happen and the result has been that many of the houses are tenantless. The Monsters at once occupy the empty house. Of course, they have no concerted plan. Yet whenever in their travels they come upon one of these houses, they make a determined effort to break in. Then we simply let them crowd each other on the roof till they become tired and run off to some other amusement."

"Why don't you fight them?"

"We do, occasionally; but it seems so useless. They propagate faster than we can kill them, and so far we have never dared force the issue and attack them in their breeding grounds. Someday, perhaps, we may do something like that. Would you like to examine some of them?"

"My word! You mean alive?"

"No, dead. . . . I thought you would, so I have arranged for my servants to attack at the proper time. They will be able to kill a hundred or more before the rest become frightened and run. I guess they have started now. At least, there is more light from the windows. Will you come outside with me?"

He pressed a small brass knob, and a hidden door swung backward into the massive wall. The two men stepped through the doorway to a stone pavement. Around the dome there was silence, the stillness of death, while from the nearby forest came the whining of frightened animals. Many of the servants were occupied in dragging dead bodies to a distance from the house and laying them in rows. As Sir Harry looked at the things they were dragging, he swayed, wiped his eyes with his hands, and then looked again.

"Am I really seeing these things?" he asked anxiously.

"I guess so," replied the Master. "Are they new biologic forms to you? Haven't you anything on the Earth like that?"

The Englishman pulled himself together, and smiled . . .

"No, and we never did have, for that matter, except in the deliriums of the drunkard or the dope fiend. This—this is all new to me. Should you mind my walking over and taking a closer look?"

"Not at all. The danger is over. I will go with you. Our method of killing is bloodless. We throw a ray into the beings and break up their life cells. They have a million or more little explosions inside them that tear their cells to pieces, while apparently doing little damage to their bones and skin. So you'll get a very good idea of what they look like. At least you'll be able to see what those we killed look like."

The Englishman walked up and down the rows of dead bodies. Now and then he stood still in front of one that was of special interest. At last he could keep quiet no longer. Whispering, as though afraid that the dead would hear, he said:

"Are they all like this?"

"No, indeed. There are almost as many types as there are individuals. Each new mating produces new types. And there were thousands of variations to start with."

"One can't help feeling," Sir Harry said, slowly, "that every one of them has something about him that suggests they were once like—well, like the three of us."

"Certainly! You are right. They are what you call human beings. At least their ancestors were."

"What—what happened to them?"

"That is a long story. Are you through looking at them?"

"Yes, I guess so. No doubt you know what they are. I confess that I don't. I have studied races of men all my life, but I never saw or heard of anything like these things. I wish that I had a camera. But, no! What would be the use? If I took pictures of them and showed them to my friends on Earth, they would all say, 'Poor Harry! Drunk again!' Take, for instance, that thing over there without a head, or that other one with at least a dozen heads, and that one with a tail where the feet should be, and the two-headed thing and—let's go back in and shut the door! I feel nauseated."

"All right. If you are ready, we will go in. I will have these bodies destroyed. We burn them, and then, when it

raing, everything is washed nice and clean again."

How the Monstrosities Came

THEY were back in the domed room. Once again the sunlight was streaming in through the glass windows, which were now free from the bodies that a short time before had obstructed the light. The Englishman sank back on a cushioned chair and covered his face with his hands. At last he shook himself and asked:

"Are you *sure* that their ancestors were once men? Real men and women, like you and your mate? Men with the shapes of the Immortals and the minds of the gods? Are you sure? Because if men can change like that on Venus, they can change that way on the Earth. *If I thought that a fate like that could ever befall my people, I would stop fighting and let the Conquerors kill them now.*"

As time passed in the large dome room, surrounded by furniture, each piece indicating the acme of culture and refinement, the Englishman wished ardently that the events of the last hour might prove to be a dream. Nightmares are horrible, to be sure, but when the sleeper awakes there comes the welcome realization that after all the dream was but the adventuring of a tired brain.

But his scientific mind forced Sir Harry to admit that it was not a dream. He had actually seen those creatures that once upon a time had been human beings. They were monstrosities, whose ancestors had been men and women, perhaps with as beautiful bodies as those possessed by the Master and his mate. He decided that he just had to know the reason back of it all. Could it be that these were just bodies without souls, that had been manufactured in some wizard's laboratory and, escaping from there, had propagated their kind?

"How did it all happen?" he asked the Master, finally.

"It's a long story," began the Venusian. "In the first place, it will be necessary to go back to the early history of our race on this planet. Gradually our life span lengthened. I believe that the temperature had something to do with it. Have you any data on that subject?"

"Yes, I think so. Some of our biologists have been experimenting with fruit-flies. They found that by simply increasing the temperature of their surroundings their normal span of existence could be increased nine hundred times. The short span of our human existence on the Earth has always worried us. The turtle lives two hundred years, the elephant just as long. We felt that it was peculiar that man, the most intelligent of animals, should die on the average at fifty."

"THEN at least you will be able to appreciate the fact that we continued to live on. Perhaps it was the greater heat. It may be that we reacted to it as the fruit-flies you speak of. But at any rate we lived on. It was a common thing for our individuals to live for five thousand years. Naturally there was the problem of overcrowding. For years this problem gave us concern. There were endless discussions. At last it was decided that the only way to save the race was to produce artificial sterility in the great majority of our females.

"The scientists of that time thought they could use radium to produce this sterility. They had certain data which they felt furnished sufficient proof of that. A careful testing of all the women was made, and a hundred of the most beautiful with their men were set apart to develop future generations of the race. All the rest, men and women, were treated with radium.

"Fortunately for our race the two hundred exempt individuals were carefully segregated on this side of Venus. It was at that time that these dome houses were built. All the rest of our race were placed by themselves in wonderful cities, which I may show you some day. Their pleasures were provided for. Free from the cares of life, they were supposed to live on indefinitely in an unending period of enjoyment.

"We did not know at that time that radium has a two-fold action. Certain doses sterilize, while other doses simply change the chromosomes.* With these women, and also with the men, the chromosomes were altered but not destroyed. When it was too late, it was discovered that instead of being sterile they were giving birth to monstrosities. We judge that the first generation of children born were not so seriously deformed as the generations since, but their deformity was sufficient to seriously affect the mental condition of the mothers.

"Think of it! For thousands of years our children had been born beautifully perfect. Now an entire generation of deformed but healthy children was produced. Mixed with maternal love, which had hitherto been pre-eminent above all other emotions, there was now maternal horror at the sight of these unfortunate little ones. The older generation became mentally unbalanced through their misfortune. I suppose you would say they became insane—at least most of them did. You understand that I am telling you something that no sane person witnessed, and which we can only imagine? At least, none of the two hundred segregated ones knew about it till it was too late.

"That was long ago. The race had made a decision and was bound to reap the consequences. The two hundred who had been placed apart from the rest of the race had promised not to interfere in any way with the thousands who had been placed in the Cities of Pleasure. So we never knew anything about it till it was too late! They kept on producing monsters. In their disordered mentality they permitted their children to mate, and with each intermating of monsters the deformities grew greater. The mental degeneration must have become hereditary; at least, there was a marked racial deterioration. They became worse than animals, and they now roam by millions through the livable portions of our planet, while we, the Masters, with our women, live in our domed houses and wage a slowly but surely losing battle against the monstrosities of our own production. I am sure that nothing so stupid could happen on your Earth."

"I am not so sure of that!" replied the Englishman. "By Jove! We are doing the same thing you did. We let our insane and feeble-minded and epileptics marry and produce weaklings and degenerates and cripples, and only here and there exists a man brave enough to advocate the sterilization of the unfit. Our hospitals and charitable institutions are crowded with mental monsters that are perhaps as horrible and sad as those you have been speaking about, as those we saw dead on the pavement outside. Perhaps we are heading toward the same end you reached."

"At least you are doing it openly, while we were in ignorance of what was happening till the first wave of these products of our misguided scientific zeal struck us. In a week over a hundred of us were killed and eaten, for these animals had reverted to cannibalism. Ever since then the remainder of our race have been engaged in a battle for existence. Occasionally a child was born to us, but the birthrate was terribly low. This tragedy all happened in the days of my great-grandfather. Today, according to my latest knowledge, there are just forty-eight adults left and at the most four children. Intermating produced a real sterility. The end must come soon, unless we can devise some means of destroying the race we helped to propagate.

---

* The particles in cells of living things that determine the species and sex of an embryo.

Even then, free from danger and able to go freely through the fern forests, we feel that our existence will soon end, because there seems to be nothing further to live for."

CHAPTER X

A Remarkable Fact

THE Englishman paced the floor in agitation, entirely different from his usual phlegmatic calm. Finally he shot over his shoulder:—

"You might be interested in knowing that they are fooling with radium on the Earth."

"Indeed?"

"Yes. I read a lot about it some years ago. A chappie put radium needles into the flower of a datura* just before it was fertilised. He was able to produce a new plant from the seeds. Scientists did some work on insects and produced what they called insect monstrosities, with unusual numbers of legs and wings, two heads, and duplex bodies. Why, they are doing with insects experimentally just what you did unintentionally with your fellow men and women. By Jove! It must be a rotten, bally mess you people are in."

"It is all of that!" interrupted the woman. "And that was one reason why we were so anxious to have you Earthmen visit us. We thought you might be able to help save us, since we are so much alike. That is why, when you finally came, we were so terribly disappointed to see these little men, and only one woman. We could not determine just where you and the woman came into the scheme of their social life. We felt that the woman was akin to us. At least, she was so much like us that we felt a harmony with her. You are like our men, only you look old; and though many of our men are over five thousand of your years old, none of them show the signs of age as you do. Perhaps you are much older?"

"No. I am not sixty years old yet."

"That is remarkable. And the woman?"

"She is under fifty."

"And white-haired? It is hard to understand—as hard as are the little men who seem to be in command of the space car. Where are their women?"

"They have none in the sense you mean. They have adopted the racial life of the bee and the ant."

"What are bees and ants?"

"Small forms of life we call insects."

"We know about them," said the man, "though we never saw any. Thousands of years ago our ancestors realised that they might become a menace to us, so we exterminated them all."

"But have you the reptiles or any domestic animals?"

"No. They were all wiped out eons ago. We did not need them. They consumed oxygen, and we blotted them out. We wanted plants to produce oxygen and, as you see, we were able to grow them. But perhaps you want to stop talking and rest a while?"

"I want one thing," said Sir Harry, in a most emphatic manner. "Is there any way that you can send me to the place where Miss Carter is?"

"You mean the white-haired woman?"

"Yes," said Sir Harry.

The Master pondered.

"Perhaps it might be better to have her come here. Of course, there is danger either way, but I suppose you will want to go back to your companions in the space car."

Here the woman crossed the room and entered into a lengthy whispered conversation with the Master. He at first shook his head, then nodded assent.

"My mate suggests that you and your woman be given the dome house of the man who has just died. I understand that it is in perfect condition and that there are over a dozen servants. You and the woman could live there and form a part of our social order. We would welcome you and do all we could to make your life a happy one. What is your reaction?"

"That is fine! I'll do it!"

"If you really want to go to the white-haired woman, I will send you," announced the Master, "but I warn you that it is dangerous."

MEANTIME, life in the vicinity of the space car was going on very much as usual. The Conquerors had witnessed the departure of Miss Carter and Sir Harry with their accustomed emotionless calm. The exit of these two members of the interplanetary expedition made really no difference to them. The value of Sir Harry to their race was completely overshadowed by the acquisition of Percy Whitland. They were sure that the astronomer was one of their race, while Sir Harry never was and never could be anything but a member of a race greatly inferior. He had gone into the silent fern forest after that enigma of all ages, a female. Neither of them had come back. Of what use to worry about their absence or sending out a searching party!

Whitland did not comment on the absence of his friends. Knowing how the Conquerors felt about them, he realized the uselessness of doing anything to help them. Alone, he could not go into the eternal shades of the fern forest. All his life he had done his adventuring through the tube of a telescope. To explore space through a telescope did not need the exact brand of courage required to walk three miles alone into the silence of the unknown Venusian forest. He hated himself for his timidity; yet, in a way, he felt that there was just a possibility that the safety of all three of them depended on his remaining level-headed.

It was on the third day of the absence of his friends that the Conquerors caught the first living thing that they had seen since their arrival on the strange planet. They first saw it walking on the edge of the landing platform, in the shade of the outer row of fern trees. They were able to watch it for some minutes without its seeing them, and when at length it did see them it did not exhibit any fear. Some dozen of the Conquerors walked out to the thing and stood around it, and still it showed no fear. It was only when they seized it and started to drag it toward the ship that it began to howl and fight. One of the dwarfs rendered it unconscious with an electric shock, and after that it was a simple matter to carry it to the space car and tie it securely with ropes.

The creature attracted the greatest interest. The Conquerors had always been first-rate anthropologists. Although they had destroyed entire nations they had at the same time preserved many remnants of the eradicated peoples in their colonies on the Earth. They felt that this living thing was in some way human, yet it was different from any human being they had ever seen. It had no language, only inarticulate grunts and screams. One ear, greatly enlarged, occupied the usual position on the left side of an abnormally small head, while the other side was perfectly smooth. Six arms flourished instead of two, and the trunk ended in what looked like a single leg but was actually two legs fused. If this was a sample of life on Venus, it certainly was different from anything they had expected to find.

They examined and studied it for a whole day. Their Specialists took blood specimens and made X-ray pictures. They discovered two sets of bones in the lower single terminal of the body. When they had found out all they could

* A rank-smelling poisonous plant.

about the thing alive, they proposed to kill it and dissect the body. Their Specialists in Anatomy and Pathology said rather coolly that the study could only be completed by an autopsy.

Whitland Rebels

THIS decision galvanized Percy Whitland into action. For three decades he had studied stars and been kind to all forms of life that came near him. Deformed, and with an inferiority complex resulting from that deformity, he had the greatest sympathy for the oppressed and weak of all kinds of life. He saw that this thing, this representative of life in Venus, was only an animal, perhaps lower than an animal; yet there was something in the way the eyes looked at him, a kind of appeal, that called to him for help.

The monster was horrible enough, to be sure. Every time Whitland looked at that combination of horrors, grouped together to make a single body, he became nauseated. But when he looked at those eyes, he felt surging over him a great pity. It was borne in on him that in some way this misshapen animal was akin to him. There was something in its eyes that made him feel that long centuries ago the ancestors of this thing had been the possessors of souls. When he heard of the final decision to kill the captive for no other reason than to autopsy it, he became furious. He at once sought out the Directing Intelligence.

"I would advise you to let it go!" he cried. "What good can any knowledge you gain do you? Having liberated it, you leave matters as they were. If you kill it, you may bring down on your head thousands of its race, bent on revenge."

"That is really what I want to do," announced the leader of the Conquerors. "If we liberate this one, he will disappear and we may have to hunt for days to find another, but if we kill this one, out in the open where they can see us, they may lose their caution and attack us. That is just what I want. If we can kill several hundred of them, they will be so afraid of us that we shall be able to travel anywhere in safety. We have found that the only way to be safe with lower races is to make them fear us."

"But suppose they don't know what fear is?"

"So much the worse for them and so much the easier will it be for us to destroy them."

"But why do you want to destroy them?"

"That is our plan of action. We have done it for eighty thousand years and we shall keep on doing it. We may take some of them with us when we return to the Earth. Just as we saved colonies of former races on the Earth, so we may save a colony or so of these strange animals. But why let the rest live? Of what use are they?"

"Frankly, I don't know, but I have always opposed useless and unnecessary bloodshed."

THE Directing Intelligence looked at him calmly, as though trying to read his mind.

"At times, Whitland, you seem to react more like a Middle Man of the Earth than a Conqueror. Had I not personally seen the examination, discerned that you had ichor in your veins instead of blood, I would feel that you were simply a misshaped Middle Man instead of a member of our advanced race."

"You can consider me any way you wish," replied the astronomer coolly. "You asked me to join you, and I came because of that invitation. It was you that suggested that I was more of a Conqueror than a Middle Man. I had nothing to do with your adopting me as a member of your race. But I do know this: I have been of help to you in making this adventure a possibility and I think that you should listen to me and not kill this unfortunate animal you have captured. Let it go. That is my advice!"

"But all of the Specialists are in favor of dissecting it."

"Then, all of you are wrong."

"How can that be when we are always right?"

"Always right?"

"Certainly. That is because we are superior to any form of life that ever existed. How can we be wrong? I tell you again that we are going to exterminate this form of life, and perhaps the killing of this specimen will act as a bait to draw the rest of the herd to us."

"And when you go back to the Earth you will go on with your program and kill all the Middle Men?"

"Certainly. Why not?"

"But why should you? There seems to be room enough for both of the races."

Again the Directing Intelligence looked with unwinking, staring eyes at the astronomer.

"But we have always destroyed civilizations when we felt that they had become useless," he at last replied, as though he were trying to explain to a child something that was very simple.

Percy Whitland suddenly decided that it was best to bring the conversation to an end. For the first time he was brought face to face with the full meaning of what it meant for an entire community to be without emotion. They simply did not look on the problems of life through the same eyes as the average man. Every action was prompted only by a desire for greater efficiency, a larger practical usefulness to the Conquerors' tribe. Anything interfering with this central idea was to be destroyed. They knew neither fear, love, passion, hatred, nor pity. Up to this time the Arizona astronomer had respected their intellectual attainments; now he was forced to acknowledge that intellect without emotion was like a bird with only a single wing—a positive without a negative force to balance it—leaving personalities that were sterile and barren so far as usefulness to humanity was concerned.

He was one against many. Failing in his argument with the Directing Intelligence of the Conquerors, he felt the uselessness of renewing it with the Co-ordinators or any of the Specialists. There was only one thing to do.

It was the decision of a brave man, ending in the conduct of a fool. Because of his sympathy with a captive that was nothing but a degenerate Monster, the greatest astronomer of his age walked slowly into the farm forest to what he believed to be a certain death.

CHAPTER XI

The Coming of the Plants

WHEN Charlotte Carter saw the Monsters which had formed the threatening circle around her die like so many flies sprayed by lethal vapors, she gave one look at the thing that seemed to be responsible for her rescue. And as she saw nothing in that figure to reassure her from fear and loneliness and utter fatigue, she fainted. She was by no means a woman of the Victorian age, one of those hoop-skirted damsels who lost consciousness at the least provocation. She had withstood the dangers of the year in Reelfoot Crater and the trip to Venus without once betraying that she was frightened, but to be saved by such a strange creature was just one straw too much for the camel's back.

When she was again able to realize what was going on around her, she found herself in a large domed room, the exact counterpart of the one that Sir Harry had awakened in. There was in the furnishings every sign of culture

and exquisite taste. While the furniture and draperies were of materials not known to her, there was a harmony, a symphony of shape and color that was extremely restful to her tired senses. A tall, beautiful, almost god-like man was resting near a table that had on it an exquisitely shaped glass vase. A stillness filled the room that was greater than any quiet she had ever known.

"I am very glad my servant found you," the man said quietly. "We were hunting for my mate. She had been gone a long time, but I hadn't given up the hope that someday we would find her. We came just too late, but fortunately in time to save you from a like fate. Are you the white-haired woman who came with the Earth people in the space car?"

"Yes, I am Miss Charlotte Carter."

"It was very foolish for you to venture into the fern forest alone. We never go except in force. It is too dangerous and capture means a terrible death. Of course, our servants can kill many of them, but at times, when they come by thousands, even our servants are overwhelmed. This time there were only a few of them, and when we saw that you were in danger I ordered my servants to rescue you. We brought you to the house of one of my race. My own home is too distant."

"And the peculiar-looking thing that saved me was your servant?"

"Yes. There he is over against the wall."

Miss Carter looked over but saw simply a sack-like body leaning against the side of the room. She protested.

"But this thing that killed those horrid animals had arms and legs and a head!'

"I know. He was active then. Now he is in the resting stage."

"What is it? I must confess that I never saw anything like it."

"That is because you are from the Earth. Many years ago we had a terrible catastrophe, during which our race nearly became extinct. We were left so few in number that we decided to try to supply the lack of man power by mechanical servants of some kind. For several years we experimented with metal servants, governed by electrical power, but they were not entirely satisfactory; frequently they were not flexible enough. Then it occurred to us to try the intensive development of some of our plants. First of all, we had to make it possible for them to become mobile, because, as you know, plants are usually attached to their base by roots. We decided on a type that had some of the central organization of our race, namely, a circulatory, a respiratory and a nervous system. The more we studied them the more we became convinced that the main difference between animals and plants was the presence of a higher mental consciousness on the part of the former—what is called in your language, the soul. By selection and intensive breeding, we developed a species of plant with a highly organized nervous system.

"TO make a long story short, we had at last a plant which, dormant, measured nearly three feet in height by a foot in thickness and da foot and a half in width. By a system of pneumatic sacks, this dormant plant could throw out pseudopodia which we gradually developed to look very much like the human extremities.

"Of course, all this took time. There were discouragements—many of them—especially when we tried to secure a co-ordination between the mouth slit, the air sack in the upper body, and the nervous system. But at last we had a plant that could talk and that could even learn a vocabulary in other languages.

"As we wanted these plant servants for defensive purposes, we especially bred them for the development of electrical discharges. Finally we grew some that were very deadly in this respect, and it was one of the most powerful of these that saved you by killing the Monsters that were threatening your life. But here come the Master of the house and his mate. They will want to greet you."

Charlotte arose to meet the newcomers. She was astonished by their beautiful perfection of body and the clear calm of their faces. She shyly expressed this wonderment.

"How kind of you to offer me the shelter of your home! We were so anxious to meet some of you, but when you did not come near us, we had to come to you. We had no idea you were so lovely and lived in such perfect homes."

The woman smiled.

"You are lovely yourself. Your name? Miss Carter? What does the Miss mean?"

"I am not married,"—then, seeing that the word was not understood, she hurriedly added, "I mean that I have no man."

"You poor thing," cooed the woman. "At your age and no man? Why, all of the women of my race are mated. Have you no one?"

"Yes, there is a man, but we have never found a minister. Sir Harry wants to marry me and we are both foolish over each other, but we can't marry without a minister."

"Is this Sir Harry the big man of your party?" asked the woman's mate.

"Yes. He is as big as your men, but not so young."

"All right, then, he must be the one they picked up in the fern forest. He evidently came into the forest hunting for you and lost his way. But he is safe with some of our people who live some distance from here."

AT this point the Venusian whose servant had rescued Charlotte interrupted.

"If your Sir Harry is safe, why not live together? I have a dome-house three days' journey from here. My mate is dead, I am sure of it; so I shall want to be dead too, because I cannot live without her. There is my dome-house, with my servants and an adequate supply of everything to last many years. I offer it all to you, Miss Carter. You and your man can live there in comfort. We don't know all about the little men who came here with you, but what we do know of them makes us afraid of them. I believe that you and the man you call Sir Harry would be far happier in that dome-house by yourselves than if you were to live on with the dwarfs."

Miss Carter was visibly embarrassed.

"You are so very kind—but we simply can't do it. I tried to explain to you that we are not married."

"We can't understand that word. We live together."

"Well, we simply can't do it. It's lovely of you to offer us a home, but I will thank you just as much if you will make it possible for us to return to our cabins in the space car."

The Venusian who had lost his mate stood up.

"If that is your decision," he exclaimed, "then I will assist you. First, we will join the big Earthman and then travel to the car."

Just then the Master of the dome-house walked over to a litttle red box and picked it up in his hands. He held it tensely, with eyes shut. When he placed it back on the table he looked worried.

"I'm afraid you will never be able to go back to the car you used to come here in. They are having trouble there; something has happened. The Monsters are gathering around it from all parts of our land. The members of our race report that our enemies in large numbers, thousands and hundreds of thousands, are passing the dome-houses, going in the direction of the space car. It would be useless

to return till this danger is over. We might possibly, by combining our forces, fight our way through to the dome-house that is sheltering the big Earthman, but our united strength would not be able to win through to the dwarfs. The Master who is looking after the big Earthman says that he is well. I think that we had all better stay here till the tide of Monsters passes over us to their new home."

"So, my dear woman," exclaimed the lady of the house, "suppose you try to be happy in the thought that your man is safe? Come with me and let me see if we can't shorten some of my clothes so you can wear them. You'll feel so much better after you are bathed and have on clean clothes. I am so much interested in all you say that it will be a constant delight to have you stay with me for a while."

The unhappy widower took the hands of the other man.

"I am going. I will take a few of my servants with me and leave the rest with you. I have nothing much to live for, and perhaps it would be better to die fighting than to kill myself. But someone ought to warn those dwarfs of the danger."

"I am afraid it will be too late," commented the other man, as he said good-by. "Still, if you feel that your time has come, no one has the right to stop you."

CHAPTER XII

The Gathering of the Monsters

HAVING decided to make a thorough study of the animal they had captured, the Specialists lost no time in going ahead with their undertaking. The Directing Intelligence and his three Co-ordinators were rather at a loss to understand just why Percy Whitland had left them, but they felt sure that he would only go a short distance into the fern forest before he would decide to return to the shelter of the space car and the companionship of his fellow Conquerors. To such degree as it was possible for them to do so, they liked the little astronomer and fully appreciated the valuable assistance he had rendered the nation in their preparations for the interplanetary trip.

The Directing Intelligence had been unable to follow the argument set forth by the astronomer against the killing and dissecting of their captive. They had always killed as they wished and experimented as they wanted to. Being emotionless, they were without fear. They realised that the thing they had captured was simply an animal, and, even if he had been one of the Old Ones, a Master of Venus, they might have followed the same course if they thought their knowledge might be increased by his death.

They were not deliberately cruel. But their ideal was efficiency and their one great aim was to add as much as possible to the intellectual attainments of their nation. They had killed before and they would kill again, but whenever they did take life, they always believed that it was for the advancement of the unit which they were pleased to call their national soul.

So they went ahead and studied this degenerate being whose ancestors had once been beautiful gods. They studied him in every way that they knew how, as they gathered around him on the stone platform. In spite of his cries and howls they kept on; and when he died, they continued the study till there was nothing left except a great many specimens to add to their pathological museum.

Seemingly, nothing happened—at first. But in reality there were hundreds of eyes watching as best they could what was being done, hundreds of ears listening to the cries of their fellow animal and the shrill comments of the Specialists as they went ahead with their observations. Then from the dark recesses of the fern forest came a throbbing, a rhythmic pulsation, and all through the forest the Monsters heard it and started to reproduce the sound. On and on it traveled, through the narrow belt of forest, the living place between the frozen dark and the heat-tortured light of Venus. It traveled till it had traversed the entire globe, forming a throbbing communication that ran around and around the planet, increasing in intensity as it progressed.

And as each Monster, as every group of horribles, heard that sound, they started to run towards its source. On one leg and two legs and many legs they ran along, some even rolling along on no legs but on a curious circular body. They ate as they ran, they slept when they had to; awakening, they started to run again. Something was happening. Something was going wrong with one of them. They did not know the details and they did not care. Animals would have run for an hour and then forgotten; monkeys would soon have stopped to dig for ground nuts or scratch for fleas; but back of every Monstrosity, far back, there was a consciousness of the solidarity of a human race. One of them was in trouble and they must help.

THEY had been killed before. They had killed each other. Death was a common and a familiar end, but death to them had always come with the speed of the wind, the swiftness of an avalanche. The Old Ones who were constantly fighting them by means of their servants killed quickly; there was no time to howl. There was hardly time for even one piercing scream. For some reason now one of them had died in a different and entirely new way. Something had to be done. So they ran ahead to do it.

As they ran they paused now and then to shake a fern tree. High in the branches they savagely shook the long fronds and these, agitated, gave out a peculiar, pulsing, throbbing noise that was different from the sound made when the wind blew. All through Venus the Masters, holding their little red boxes, picked up the sound, knew its meaning and realised that the Monsters were gathering around the space car.

The Masters and their women knew it. Sir Harry and Charlotte, guests in different dome-houses, knew it. Percy Whitland, walking angrily through the forest, still angry in spite of the many hours that he had been away from contact with humanity, heard the sounds in the trees and dimly realised that the scene was being set for a titanic struggle. Every living thing on Venus knew that something unique in the history of the planet was going to happen; that is, every living being on Venus, with the exception of the Conquerors!

For eighty thousand years no one had ventured to oppose them, except once and again a slave who could be easily killed. At times there had been a revolt of slaves, and it was as easy to kill a thousand of those wretched serfs as it was to kill a few. The Conquerors had never had to battle with a foe of equal or superior strength. The very idea that any race of mankind would dare to attack them was preposterous.

Anyway, there was nothing unusual in the appearance of the fern forest as yet. To the carnal eye, it was just as it had been at first sight, during the early hours after their landing on the smooth platform. The day after the final study of the captive, everything was still quiet. The Directing Intelligence decided to hold a meeting of the entire nation to decide on future plans. They gathered out on the landing platform, for only there could all come together at one time. The leader briefly reviewed the events following their arrival on Venus. They had made a study of their immediate surroundings, had made one captive of a peculiar animal and studied it thoroughly; and they had lost three of their group, Sir Harry Brunton, his woman and Percy

Whitland. He considered the loss of the astronomer of real importance, but did not fear that the continued absence of the other two would make any difference. He wanted the different Specialists to express themselves as to what should be the next step in exploration.

The First Battle

A CO-ORDINATOR arose and started to speak. But what he said was overshadowed in importance by a cry just then from the edge of the fern forest. This cry was followed by another and by a third, till all around the landing platform there was a pandemonium of sounds, all the more terrible because of the complete silence that had been broken. Yet, with all that conglomerate sound, there was nothing visible to explain it. But all the Conquerors knew what it was; it was the cry of the same kind of animal they had been studying.

Then, as though obeying a preconcerted signal, from all sides the Monsters leapt out of their hiding places and ran toward the gathering of dwarfs on the platform. The platform was large and the Conquerors had gathered only a short distance away from the space car. Had they been active men, accustomed to physical exertion, it would have been an easy thing for all of them to be saved. But they could not run. Their enlarged heads, the seat of their massive intellects, made anything but a balanced walk impossible. On their side of the car there were four doors, but each of these doors had to be reached by ladders.

Around the base of these four ladders the Conquerors gathered. While some started to go up the ladders, others prepared to kill. Their electric discharge would kill easily, but it was selective; only one victim could be stopped at a time. The type of discharge used by the plant servants was far more effective, for that showed considerable scatter and if the Monsters were grouped, it could be sprayed on them instead of being used as a single thunderbolt. Even though the Conquerors seemed small, helpless and insignificant, compared with the strange animals rushing upon them, they had no background of fear to make them feel concern. They had always killed those who opposed them, and they could kill again.

With the animals it was different. They had learned to know the plant people, the harmless-looking but deadly servants of the Old Ones. Experience had finally drilled into their dull minds that it was best not to venture an actual conflict with one of those servants who were all the time running around with one of the Masters. But if a Master or his woman was caught out alone, there was only one ending: he was always captured and killed. He might kill some of the enemy in the battle, but he never escaped. When the Monsters rushed out on the landing platform, they only saw a number of the little people that looked as though they might be the children of the Old Ones. They were sure of their victory—and rushed on.

By the time they reached the bottom of the ladders, over half of the dwarfs had reached safety. The ladders were full and around the bottom of each one stood a small guard, waiting, ready to kill. And kill they did. From every dwarf who stood on the landing platform darted the deadly Jovian bolt, and for every bolt a Monster stumbled and died. But those around him never knew it. They simply rushed on, up to the Conquerors and over them, and even started to climb up the ladders to the doors, that were still standing open.

BUT the doors were suddenly closed,—closed even in the face of a few Specialists who had not reached the tops of the ladders. And once they were closed, those Conquerors who had passed in were safe behind thick walls, strong enough to withstand any attack. The Monsters reached the doors, tried to get in, let out yells of rage and climbed down the ladders.

These abnormalities of biological growth were vegetarians by necessity and meat eaters of choice. In the world they lived in there was food in abundance, but it was not the kind they craved. Occasionally they caught and killed an Old One; once and again they fought among themselves and ate the bodies of the slain. But this day, as the result of a short battle, they had at their disposal the bodies of fifty dwarfs and over two hundred of their own kind.

But the attack had not been made by a scattered tribe, it had been carried out by a hundred different herds; and reinforcements were constantly arriving on the scene. The platform was covered with them, the woods were full of them, the trees were swarming with them. There was food in great amount, but there was not enough. And the one impressive fact that reached the higher consciousness of the Monsters was this: In that peculiar house there were many more things that could be killed and eaten. All they had to do was either to get inside or have them come out.

So they waited. . . . And as they waited, more came. From the north they came, and from the south, through the narrow belt of fern forest, and as they gathered around the car in thousands, they made the place horrible with their unearthly cries. They did not mind waiting—they had nothing else to do. It was so satisfactory to know that inside that hut was an abundance of meat—and the meat was not protected by deadly plant servants.

From the windows of the car the Conquerors looked out and made further studies of the new type of life. But this time the studies were made through thick panes of glass.

The Great Scheme

AS a disaster the experience was unique to the Conquerors. In all their history they had never known defeat, had never been blocked in any of their undertakings—and now in a few minutes they had lost over a quarter of their strength. Several Specialists who could ill be spared had died in the battle around the base of the ladders. But with their usual efficiency, they at once started to apportion the duties of the dead men among the living of the expedition.

The next work undertaken was the discovery of some means of destroying the Monsters. Never again must such a debacle strike the Conquerors. There was a lot of work remaining to be done before they were willing to leave Venus and return to the Earth, and this work could only be done safely by a complete destruction of the inferior race. Plans were discussed, not from the standpoint of hatred and revenge, but rather from that of efficiency. There was work to be done, and nothing and nobody must be allowed to interfere with that work.

The council of war decided to take advantage of the evident hatred of the thousands of animals milling around the side of the car. They would follow the car if it moved slowly over the tops of the fern trees. So long as they could see it, they would follow. The Conquerors believed that there were other landing platforms. They planned to come down to the ground now and then, and in a tantalizing manner to allow the Monsters to again surround them. They were going to take the entire race of horribles westward. For the Conquerors knew something that they were confident the beasts did not know; or, if they did know it, they would lose sight of it in their diabolic hatred and blood lust.

It was time for the astronomical phenomenon, known as oscillation, to plunge the western strip, one hundred miles wide, back into the utter darkness and intense cold, for a

four month period. While this was taking place on the west side, a strip of the same width on the eastern side would come forward into the sun's rays, and for four months that would be the pleasant, livable side of the planet.

The Conquerors determined to drift slowly westward in their space car, confident that the Monsters would follow the car. On and on they would go westward to the place where the fern trees grew smaller and at last became simply moss an inch high. Out there in the open spaces, on the edge of the globe, the animals would gather around the car; and there, without shelter and with clear visibility, they would be killed by the scientific weapons brought from the Earth for that purpose. The Conquerors would kill all they could, and would then drive the frightened remainder in front of them into the darkness. The planet would swing around; for a hundred miles the zero of utter darkness would come—and with it, death from the irresistible cold. Then, with these inhuman enemies out of the way, the Conquerors determined to drift to the east side of the planet for another period of study.

As a piece of strategy it was a beautiful conception. It took into consideration every known fact involved, and gave correct values to each. It included a proper estimate of the psychology of the mass of beings around the space car. In spite of the absence of Percy Whitland, an accurate calculation was made of the planet's swing from east to west. And to show the correctness of their plan, it worked exactly according to all their calculations. Once again the Conquerors showed that they deserved the place of rulers in the intellectual life of the Universe.

They slowly swung the car upward, and then pointed it westward. Its bottom just cleared the delicate tops of the fern trees. Ropes from it brushed through the branches and were caught at by the infuriated animals following, who were rendered all the more ferocious through the fear that after all they might lose their prey.

The Great Disaster

THE propulsive mechanism of the car worked perfectly. The psychic impression worked just as well. At the end of fifty miles of travel westward they found just what they were looking for, another large, white platform. They allowed the ship to settle slowly down on this smooth surface. Now all they had to do was to wait for the entire mass of odd-shaped creatures to catch up with them. At the end of a few hours the platform and even parts of the space car itself were covered with the blood-hungry animals. At every possible crack, long, hungry fingers tried to enter and pull off pieces of the car. Each failure produced greater rage and more noise. Pandemonium of beastly shrieks filled the forest.

Another fifty miles were traversed—and now the fern trees were no longer giants of the forest; they were small three-foot plants. It was no longer difficult to make out the various Monstrosities, as they stood among the little ferns, howling their rage and, lacking other enemies, fighting with each other.

A few miles more brought them to the limit of vegetation—to the last limits to which the sun's rays had come during the four months just past. There had been but little warmth to the sunlight here. Far in the distance loomed the gigantic peaks of everlasting snow, still melting slowly, but almost ready to gain another four months' victory over the glorious sun.

Over all this plain, barren except for moss, still muddy from the thawing glaciers, spread the Monster race of Venus. And the Conquerors, looking eagerly through the glass windows of the car, promised themselves that after the slaughter they would spend some time in studying and classifying the dead things and adding still more to the already great knowledge of their race.

Gradually they allowed the huge car to rest on the mud. Then they waited till they were reasonably sure that all their victims had arrived. No refuge was possible now in the fern forests, no hiding behind the trunks of giant trees. The fight was out in the open; but it was not going to be a fight this time—it was to be a slaughter. The Conquerors had learned their own lesson and they were going to teach one now to these misshapen creatures.

From every window, out of every door, were thrust the long ray tubes of the car. Slowly they were swung to and fro, and where they landed they killed. Not till half of the victims had died did it gradually seep through the dull brains of the living that this was something different from the tearing of small helpless bodies to pieces. At last they decided to run, but when they did so, they found between them and their former home a long thin line of dwarfs, each with a ray tube in his hands and murder in his heart. The only place of retreat was the snow-capped mountains, beyond which lay the land of eternal night.

The survivors started to climb the mountains. A few turned back to die at once, but the others, panic-stricken, climbed into the snow that soon became utter darkness, doom and death.

Five hours later the dwarfs, exhausted but victorious, returned to the space car. Not one of them but had done his share to revenge the death of his fellow Specialists. Even the Directing Intelligence had taken an active part in the unequal battle.

But something stupendous had happened. . . .

For thousands of years the dwarfs had taken no exercise and performed no muscular work. They had lived and moved, but so slowly that only a minute amount of toxin was formed in the course of the day. Their eliminative organs had adjusted themselves to taking care of this small amount. Now, without physical preparation and in spite of their great intelligence, they had flung themselves violently into the task of destroying the Monsters. For five hours they had walked over the plain, carrying their ray guns and relentlessly pursuing the unfortunate, terror-stricken things to their doom. Muscular work and desire for revenge had generated poisons in their organs in far too great amounts to be eliminated. The dwarfs did not indeed die, but they returned to their space car the victims of acute auto-intoxication. They shut the doors and, falling on their beds, started to sleep. It was the slumber of intoxication, a coma, a stupor so profound and so prolonged that it closely resembled death.

During that sleep many changes were going on in their highly sensitive bodies. They awoke at last, to be sure, but never did they fully regain their former towering intelligence. They were able to think, but not to perfection; they were no longer demi-gods; they were simply unusual men who had developed one aspect of their being at the expense of another aspect, and who had as a consequence become sick.

For thousands of years they had worked toward a greater intellectual perfection. For generations they had neglected the fact that healthy minds can grow only in healthy bodies. As a result, five hours of active exercise and hate stimulating to slaughter, had destroyed the patient work of countless centuries.

CHAPTER XIII

The Beginnings of Life

THE Old Ones of Venus knew that something stupendous was going on, that an important part of the history of their planet was in the making. They

realised that their eternal enemies, the Monsters, were migrating, but they were not sure of the cause back of the mass movement. For the first time in their experience, the Monsters seemed to be animated by a common cause.

The Masters started to communicate with each other. As the hours passed, it seemed more and more evident that a large proportion of the misshapen animals were gathering together. The territory for many miles around the original landing of the space car had become safe for ordinary travel. The Master who had lost his wife wandered through the fern woods for many hours without meeting danger of any kind.

At last the Venusians listened to the pleadings of Sir Harry and of Charlotte and decided to assist the latter to make the journey necessary for their reunion. It was realized that this had to be accomplished quickly or not at all. The four months of bitter cold, blizzards, and darkest night were near at hand for the western strip of the planet. During those four months it was customary to remain in the dome-houses and wait for the next shifting of the planet. It was nearly time for the oscillation to occur; in fact the movement was slowly beginning already.

So, without delay, the Master and the woman who had been taking care of the white-haired Earth woman started with her on the short trip to the dome-house that was sheltering Sir Harry. The journey was made without interruption. They were well guarded by the plant-servants, although they really had no need of them, for not a single Monster was seen on the trip.

Sir Harry and Charlotte greeted each other with very little external show of emotion. Great as was the depth of their love, they treated each other quite demurely in the presence of strangers. The Englishman tried to be as nice as possible; so did the Virginian; as a result they were more formal than usual. The two Masters and their women looked on the behavior of the visitors with ill-concealed interest and amusement. They could not understand why this man and woman should act in that way if they really loved each other.

The chief object of discussion was the migration of the Monsters and the disappearance of the space car.

"All that we are sure of at this time," admitted one of the Masters, "is that the car left its first landing place and started to go westward. That was after the battle in which so many of the dwarfs were killed. From several observations made by members of our race it seemed that the car was going due west at a low rate of speed, and not very far from the ground, and that the Monsters were following it. No doubt the dwarfs had some definite object in mind in going west, but it seems to be a very dangerous thing to do at this time of year."

"Have you any way of telling whether one of the men, Percy Whitland, was in the car or not when it left the landing platform?" asked the Englishman, anxiously.

"No. We were able to pick up some snatches of conversation which indicated that he had an argument with some of his fellows, but after that we lost touch. You can understand this better when I tell you that our receiving sets pick up sound waves far better than they do light waves. For example, we could hear very well some of your conversation on the Earth, but we had no idea of just what kind of people you were. In fact, we did not realise how small you were as a rule till the space car arrived here on our planet."

MISS CARTER looked concerned.

"You must not gain the impression that all or even most human beings on the Earth are like those dwarfs. I think that Sir Harry ought to tell you about that race and everything that happened, leading up to this journey through space."

"My word, Miss Carter, I can't do that, don't you know. I'm not an orator. Why, you make me feel like wilted lettuce, merely suggesting such a thing!"

Nevertheless, he yielded to her pleading, and for three solid hours the Englishman talked, giving a brief but comprehensive account of the development of human life on the Earth and the ascendancy gained by the Conquerors.

"That is very, very interesting to us," said one of the Masters. "It is especially so when we realise that our race is directly responsible for all of it. You see, we are so much older than you are that we tried, many years ago, an experiment. We tried many experiments from time to time and some of them were complete failures: for example, the one which resulted in the origin of those Monsters. But this experiment of starting life on other planets evidently worked out a little more successfully."

"My word!" exclaimed the Englishman. "You surely don't mean to tell me that it was you people that planted life on our Earth?"

"Yes, I do mean precisely that. Answer me one question. Have any of your scientists any positive knowledge as to how life started on your planet?"

"No. Lots of theories, but nothing that we can be sure of."

"Then I will tell you. Of course, it all happened very, very long ago. We who are now living are very long-lived, yet our life is but a breath compared with the vast ages of life that preceded us on this planet. We have written records that date back many millions of your years, and these are still legible. I have read them, and I think I could teach you and your woman to read them."

"How many million years?"

"Many, many more than I can tell of."

"And you can read them, and arrive at an intelligent understanding of what took place during those ages past?"

"Yes, indeed. The story is all there, engraved on tablets of gold."

The Englishman paced the floor in intense excitement.

"Wonderful!" he almost shouted. "Let me see them! If all this is true, I don't care whether I ever go back to Earth! If our people on Earth are safe, relieved of the menace of the dwarfs, the threat of the Conquerors, all I want to do is to just stay here and read those gold plates till I die."

"Is that *all* you want to do, Harry?" asked Charlotte, smiling.

"Well, of course, you know what I mean. Naturally, I want you to be here to read them with me, but if you can return to Earth, perhaps you had better do so, for your own good."

"But who would sew on your buttons and darn your socks if I left you?"

"Why, bless my soul, I never thought of that?" He turned back to the Master who had been talking about the gold plates.

"Tell me about the start of it. Are you sure that the people on this planet started life on the Earth?"

"That seems always to have been our tradition. I have read some of the very early gold plates, and it seems that our ancestors took the credit for it even if they did not deserve it. Here is the story.

"Go back five hundred million years of your time. We were then a highly intelligent people, scientifically inclined and interested in all the problems of nature. When you visit our museums in the dead cities of our past existence, you will be able to judge for yourself just what our culture was in those early ages. Of course, we are a dying race

now, perhaps unable to die and yet equally unable to reproduce ourselves. We live in the past, in dome-houses built eons ago, surrounded by objects of culture made by dead hands. Even our servants, wonderful as they are, were brought to their height of perfection by remote generations.

They Do Not Know

"OUR astronomers watched the Earth with a great deal of interest, for it was our nearest important neighbor. Of course, Mercury was near us, too, but we felt that we could never become biologically interested in that planet; it was entirely too near the sun. So our ancestors kept on studying the Earth for ages, waiting patiently for the time to come when there might be a chance of successfully planting life there.

"Your planet had gone through the various stages. First it was simply a large mass of superheated gas, twirling on its center and constantly growing smaller and cooler. Planetesimals in great numbers fell on it, enlarging it and helping the molten mass to form a crust. Titanic mountains rose and fell again; an atmosphere collected, and from this atmosphere rain fell. Imagine the first drops of water, torn into steam before ever touching the earth. But other drops fell. It was the expression of the eternal conflict between fire and water. When the heat had abated somewhat, the Earth's surface was covered with huge ponds of water and gradually the oceans developed.

"The oceans and the endless tides! Water pulled into waves by the moon, and waves pulled back into the womb of the sea by the fighting Earth; water—restless, ever agitated, never still! Water, without which life is impossible! And when we knew that the water was there, we felt that the time had come for our great adventure.

"I am not a scientist. Some of the words used in the early records are hard to understand, but apparently my ancestors made a study of things in the little, the phenomena of the single-celled life. Some of these cells were almost ultra-microscopic. While some studied these, others built hollow cylinders and spheres capable of existence in the spaces between the planets. It was all experimentation, but back of it was a desire to start life—our life—on other planets. We studied our own origins. Doubtless we made many mistakes and met with frequent discouraging failures.

"But the scientists of Venus kept on, and at last they filled thousands of spheres and cylinders with closely packed little cells. These vessels, containing millions of little lives, they shot out into the uttermost voids of space. For centuries they kept on, hoping against hope that some would fall into the atmosphere of the Earth—would explode there, and shattering into a million pieces, liberate their little passengers so that those cells could find a watery home in the newly formed oceans of a new-born world.

"We could not be sure, but we felt that some had landed. Eons passed and, out of the water, life must have crept up on the sea-beaches of your world, five hundred million years ago. And when that life came out of the water and started to live on the land, the little nervous system of that infant life looked towards the stars and had vague dreams of what it might be in the ages to come.

"From that time on you are familiar with what happened. You have told us today of your reptilian ancestors, of the sharks and the monkeys and the Dawn-men. You followed life up till it ended in something we never dreamed of—the Conquerors, with great intelligence but an absolute lack of emotion. As I listened to your story I wondered concerning the wisdom of my ancestors. Were they wise in wanting to start life on a new sphere? Could they have foreseen its final endings, would they have started it?

"THE eons passed. Age after age of my ancestors lived and watched and waited hopefully only to die at last without any assurance that they had succeeded in their undertaking. We had most delicate instruments of precision with which we hoped to hear the transmitted language of the first life.

"At last we heard it—confused roars, snarls, yells of the hunter and the hunted! There was something there to indicate intelligence, and the only desire we could see, the only hope we could discover, was the urge to preserve the life of the individual, the blind hope of perpetuating the species. At last we thought we could pick out something that sounded like speech. Fifteen thousand of your years ago, we heard those first differentiated grunts of what you have called the Dawn peoples. After that the progress of speech was rapid.

"We met with discouragements. We would spend years learning one of your languages, and then suddenly it would cease coming to us. It was hard to understand what had happened. We know now that that particular race had been destroyed, blotted out, by the people you call the Conquerors, the dwarfs that had the intelligence to finally win a victory over space and come to Venus. We knew of their plans, and, as you are well aware, we tried to aid them with our knowledge.

"By this time there were just fifty of us left, just twenty-five couples of the Old Ones. Can you imagine the breathless anxiety we felt as we watched that space car wing its way through untrodden reaches of space, and at last land on our planet? . . . .

"We saw the ultimate descendants of the germs we had sent out, returning of their own accord—and after all what were they? Dwarfs, asexual, ugly—intelligent, but devoid of those emotions which we have felt constitute the greater part of the happiness that this life gives us. You have told us that they know neither love nor hatred, fear nor passion, pride nor shame. You say that, though they have won through to a greater learning, they have made progress upward by stepping on the corpses of inferior nations, and that in making their own race great they have made the individual of that race simply a piece of living machinery, incapable of feeling or emotion.

"We cannot feel that such a race should claim kinship with us. We are the Old Ones! We have lived for beauty, for the finer arts of life, the culture and refinement of the soul. You, the man called Sir Harry, are like us. Your woman is like us, in spite of her peculiar ideas about man and woman and the odd ceremony she calls marriage. We feel that the two of you are in sympathy with us. You appeal to us. I believe it was the hope of our ancestors that the Earth would some day be peopled with men and women like you, similar to ourselves in ideals. Could they have looked ahead and seen these one-sided Conquerors, all head and no heart, I feel that they would have left the Earth untenanted!"

"A most remarkable tale," commented Charlotte. "Your explanation of the origin of life is very similar to that given by many of our primitive races on the Earth. But there is one question I want to ask you. Do those gold plates explain how life *started on your own planet?*"

"That is something that we do not know," replied the MARKAY.

CHAPTER XIV

A Meeting in the Forest

IT has been said that God preserves children and fools. While Percy Whitland belonged to neither class, he was, in some miraculous manner, saved during the

first two days of his wandering in the fern forest. He was either overlooked by the traveling tribes of Monsters or they were possessed of such single track minds that they could think of nothing else but arriving at the origin of the signal thrown out for the gathering of the race. He made no effort to conceal himself, but simply walked on through the fern forest with the same calmness with which he would have walked through the streets of Flagstaff, Arizona. He had only two thoughts in his mind. One was to try and find his friends, Sir Harry and Miss Carter; the other was to completely cut himself free from any further companionship with the Conquerers.

There may have been a conflict as to whether he should regard himself as a Conquerer or as a Middle Man. If such a struggle existed, it was at this time only in his subconscious. He was willing to die if necessary, but he was no longer willing to live as a member of a race which knew neither love nor pity for lesser members of the biologic world.

In spite of his great erudition he was at bottom a simple soul. Thoroughly at home in the outer reaches of the Universe he trusted implicitly in the guidance of the Great Power that had taken handfuls of star dust and tossed them into the Abyss of Time, into the gaping maw of Eternity. He knew that "the undevout astronomer is mad." Years of study through the eyepiece of telescopes had made him confident that for every thing and every body there was a plan, there was a programme, and all that anyone had to do was to play his part courageously in the drama of life. As long as he did that, there was nothing for him to fear.

Yet, despite his outward calm, he had a feeling that there was something to demand his attention. It was a peculiar sensation: something needed his thought, yet, for the time being, he had not the least idea what it was. Suddenly, like a flash of lightning, it came to him. He stopped walking, sat down on a pile of dried fern leaves, took a pencil and some paper out of his pocket and began to do some calculating. Mathematics was a necessary part of his life as an astronomer. For thirty years he had peered through a telescope at night and solved problems pertaining to the arithmetic of the Universe during the daytime. Few things in life gave him a greater thrill than filling a sheet of clean white paper with rows of staggering figures.

Working out this problem, he lost sight of the fact that he was hungry and sleepy and worried about his friends. He simply knew that there was a problem involving figures that demanded his attention. All else, for the time being, was blotted out of his consciousness. He filled a page, pinned it carefully on the ground and started another one. Several odd-shaped things came near him silently, but he did not see them. Something else came near, so large that the shadow from it fell on the piece of white paper and made it hard for Whitland to see the lead pencil marks. His gaze was still on his paper when in front of him he half-saw something that looked like human legs, subconsciously realized that the person owning those legs was between him and the sun, and cried irritably, without looking up:

"How do you expect me to finish this problem if you insist on standing in my light?"

NOT till he had said the words did he realize where he was and the peculiarity of his request. He looked up and saw the shadow thrower. It was a large man, as large as Sir Harry, but far more beautiful, with clothes on that made him look a little like an ancient Greek. Back of him were several odd-shaped creatures. The astronomer remembered that he was first of all a gentleman. He jumped up and started to apologize.

"You must really forgive me," he began. "I was so interested in my calculation that I lost sight of everything else for the time being."

"Are you one of the dwarfs?" inquired the stranger.

"No! A thousand times no!! They tried to make me think that I was, but when it came to the acid test, I could be nothing but a plain human being like my friend, Sir Harry."

"So, he is your friend?"

"He is, indeed. He has been that for many years."

"Then you will be glad to know that he and his woman are safe. I just left them a few hours ago in one of the dome-houses with one of my race taking care of them. You seem to have been fortunate. At any other time you would have been killed in a few hours, but here I find you absolutely unconcerned, sitting on the fern leaves and doing some sort of a problem."

"It is a very interesting one. I am trying to determine just how soon the phenomenon I call oscillation will occur."

"What do you mean by that word?"

"The slight shifting of Venus from east to west and then, four months later, back to east again. I have an idea that the next swing of the planet is going to start at any time. That is what I am trying to determine, but I am afraid I have lost a few days somewhere."

"I can tell you about that. It has begun. In fact, that is why I am out here in the forest. Within not so many weeks all this land will be under a heavy blanket of sleet and snow. These giant trees will be leafless and covered to their tops with ice. For the width of over a hundred miles all will be bleak desolation. That is why I am here."

"I don't follow you. What has that to do with your being here?"

"Simply this: Some time ago my mate was captured by the Monsters who infest our forests. They killed her. In truth, they did worse than that. Life is no longer worth the living, so far as I am concerned. So I decided to die. I deliberately left the dome-house of my friends and started to wander through the forest. My first thought was that I and my servants might meet part of the migrating hosts and die fighting them. But they are all gone. They seem to have completely disappeared. Under ordinary circumstances, you would have been killed long ago. So, when I found that there was no chance of my dying in a fight, I decided to simply stay out here in the forest till the period of utter darkness and desolate cold should come and I should be buried a hundred feet under a pall of solid snow."

A Fight Against Time

"I AM so sorry your woman died," sympathized the little man from Arizona. "I realize that the loss of a loved one must be a very sad blow. From what you say, you expect the change in temperature to come very soon?"

"Yes, it has in fact begun. The western edge of our planet is already swinging into the shadows. We all know the exact time, because we have watched it carefully for many years. And for every zone that goes in the west from sunlight to darkness a zone of the same width in the east passes from darkness into sunlight. Some of my race—we call ourselves the Old Ones—travel from side to side of the planet as the seasons change, but others seem content to live on in their dome-houses, buried under the mantle of snow, which really keeps them warm, until the sun, melting the snow, releases them from their frozen prison."

"Do you realize how interesting all this is to me?" asked Whitland. "I was the only living astronomer on the Earth who believed that such a movement of Venus took place. I studied the change for thirty years and talked and wrote

about it till all my colleagues thought I was insane. Now, I am actually here, think of it! And the real facts are just what I said they were, and when I stated them I was 26,000,000 miles and more away! I told about the oscillation, about the torrential rivers. . . .

"I don't want you to die. You must not die! Sir Harry is safe and so is Miss Carter. We don't have to worry about them. And I am through with the Conquerors! I don't care if I never see them any more; but I do want intensely to go over to the other side of Venus. I want to see what happens when the sun strikes those mountains of ice and snow. You are the only one who can take me there. Surely you will, won't you? I am an old man, and you seem to be so young and wonderfully strong. It would be such a simple thing for you to do. We ought to be there now. Isn't there some kind of a flying machine you can use? We can't walk across the desert of fire. If we stay here, we shall both die of cold. I don't mind death—everyone must die sometime—but I do want to see the final proof that I am right before I die, and the only way that I can is to cross over to the east side of Venus. *Please take me!*"

It was a strange sight, the little old man clinging in his eagerness to the robe of the fair godlike Venusian. The giant looked down at the pleading face of the astronomer, and said simply:

"But I want to die."

"All right! But do first take me across the planet. Then perhaps we shall both be ready to die. Perhaps I shall be so happy that I shall die of joy! I have worked so hard, and all I want is final proof that I was right."

"I guess that I shall have to let you have your way," at last decided the Master. "There is only one possible chance, and that is a slim one. Some distance from here lies one of our old cities. Long ago, when our wonderful race was in its prime, we lived there. Now, nothing lives there. I think that if we go fast enough we can reach there before the darkness comes. There are airships there, museum pieces of a science long since departed. We Masters know all about those inventions, and years ago we used to go there and play with them, but I do not know that any of us have been there for centuries. But I will take you there. We shall have to go very fast. I think I will have my servants carry you to make faster time."

"Your servants are odd."

"I suppose they seem so to you. They are plants with a nervous system that makes them almost human. Are you a biologist?"

"No, not at all."

"Then you wouldn't understand about them. But you don't have to. Just let me give the order."

HE whispered something in an odd tone and at once two of the plant servants picked up Whitland, slung him on their arms between them and started at a smart trot through the forest, the Venusian and the other servant following.

On and on they went, resting only when they were utterly wearied. Day after day passed. Meantime, it grew slowly darker, there came a chill in the air, and now and then falling snow. Evidently there was no time to lose. The planet was swinging westward faster than they could run eastward.

The footing was now becoming hard. The fern leaves were wet with snow and slippery. The wind blew cold, chilling the astronomer, who was not able to keep warm by exercise. He shivered and wondered just how much longer it would be before they could reach a warm place. He was growing sleepy. He dully thought that this might be the end for both of them, and he was sorry that he had not told Sir Harry and Miss Carter something that was on his mind. He tried to remember what that something was, and could not pull the thought from his dull consciousness . . .

Just in time they reached one of the main doors of the city. The weather was bad. The sky was dull gray and out of it came pelting pellets of frozen rain. The temperature had fallen to below the freezing point.

The Master pushed against the knobs on the door, first the upper one, and then the third from the bottom, and at last the one on the extreme right—in the ring. That knob, with the ring around it, looked a little like the great All-seeing Eye. The door swung open and the Master almost fell in, sliding on the marble floor. The servants, carrying the now unconscious astronomer, came next. Just in time the Venusian recovered consciousness, arose, slammed the door shut, and dropped from fatigue.

They were in the City of the Dead, but the winter was upon them. They would be fortunate to live through the next four months till the recurrent sun would liberate them from their snowbound home. Meantime the blizzard raged over the ancient city, a place of domes, that rose on each other like gigantic soap bubbles. Only a few days before those domes had arisen in the sunlight, their glass walls glistening golden and crystalline in the glory of the perpetual beams from that central furnace of radiant light. Now the domes were encrusted with snow, growing deeper every minute. Another day would bury the city completely under a thick blanket of dead white snow.

But in that city, under that snow, two men lay sleeping off their fatigue, and three plant servants, shrunken to their dormant condition, leaned against the wall, awaiting their Master's voice to rouse them to fresh activity.

The men were fortunate to be alive. Under that blanket of snow, they had a chance to live on, if they had food and drink. But Percy Whitland would not see the sunshine pouring on the eastern glaciers, tearing them into drops of water which would form rivers five hundred miles wide. At least, he would not see it at this time. He had waited thirty years, and it looked as though he would have to wait a while longer.

CHAPTER XV

A Message in the Darkness

THE other dome-house sheltering Sir Harry, Miss Carter and their hosts was also covered with the deep blanket of snow and sleet that was swiftly making the extreme west of Venus a silent white grave. The darkness and the cold had come with a rapidity that was startling to the explorers from the Earth, but by the Old Ones it was taken just as a matter of course, something that came with rhythmic cycles, as a part of their routine existence.

They explained it all to their visitors: that the dome-house would be covered a hundred feet deep by the storms, but that, underneath, they would remain snug and warm, thanks to the perfect architecture and building devised by their ancestors many millions of years ago. Everything had been anticipated, every need provided for, and all that was necessary now was to follow the customs of the past and be sure not to be caught by the enraged elements.

"That is all right for you few Masters of the Evening Star," commented Sir Harry, "but how did the Monsters survive during all those years and centuries? Did they have intelligence enough to make and use houses that were as perfect as these dome-houses?"

"No. So far as we know, they just kept moving towards the sun. As their land became covered with snow, they kept

going out into the heated desert. No matter how bitter the winter, there was always the edge of mud, the region where the sun continued its constant fight against the cold. We are not absolutely sure, but we are convinced that there is where they lived. Perhaps some of them would cross the continent, going around the poles, but most of them lived a miserable existence out on the hot mud flats till the sun started once again to melt the ice covering the fern forests. When that ice starts to melt, the change is extremely rapid. In a week the torrential waters are refilling the old river beds. In another week new branches start from the tops of the fern trees. In still another week, part of the ground is bare. Then the Monsters have always come back, thin, worn, and not so many as when the winter started. They ate the tender sprouts of the ferns; we thought also that they ate each other, the old ones of their tribes. Then came the time for their spring festival and their matings. Something like that happened every year. Of course, it was hard on them, but they survived."

"But what will your friend do?" asked Sir Harry, "—the one who deliberately went into the forest knowing of the danger?"

"Don't you know? He went out there because he wanted to die. He knew the danger, but, with his woman dead, he had nothing more to live for."

"Then it was a deliberate suicide?"

"Yes."

Miss Carter looked up from her sewing, suddenly.

"I wish we knew what has happened to Mr. Whitland, Harry. If he is alive, it seems as though he ought to try to communicate with us. And where is the space car?"

"I AM going to try and answer some of your questions," interrupted the Master. "We have a rather fine receiving apparatus. It picks up the sound waves and transforms them into vibrations that can be appreciated by the nerve-endings of our fingers. Of course, we only use this machine for short distance work. When we received sounds from the Earth, we used amplifiers. Suppose I try to communicate with some of our race and see what I can learn? If your friend, the one you call Percy Whitland, is with any of our race, we shall be able to have you talk to him."

He picked a little red box off a table and placed it on his knees. Then he placed his hands on either side of it, holding it lightly with the pulps of his fingers and thumb.

Sir Harry and the white-haired woman watched him with the greatest interest. At times he looked slightly worried, at other times he smiled. At last he took his fingers off the box.

"It is all very interesting," he commented. "The men of my race are making their various comments. There seems to be no doubt that a large number of the Monsters migrated in an unusual manner. Our western winter is in full blast and most of our race are shut in for the next four months. There are a few couples who live on the eastern habitable strip and of course they are just beginning to thaw out for their four months of summer.

"We can answer your question concerning your friend, the astronomer. The Master who lost his mate and left here to die in the storm found him and took him to one of our dead cities. They reached it just in time to escape from a frozen death. The Master says that they are both ill from exposure, but they feel that it is nothing serious. Would you like to talk to your friend?"

"My word! YES!!" exclaimed Sir Harry. "That would be a remarkable experience. How shall I go about it?"

"Simply hold the box with your finger tips and ask him a question. Then wait for the answer."

The Englishman picked up the little box. He was accustomed to the televisional apparatus in use by the Conquerors, but this mode of conversation seemed to him to be a trifle more weird and inexplicable.

"Hullo, Percy! Where are you?" he asked.

And then he waited. His face was anxious. At last he looked at the host and said in an interrogating voice:

"It seems that something in my brain answers, 'I am in *a City of the Dead*.' Shall I go on talking?"

"Certainly."

"Why did you leave the space car, Percy?"

And again something seemed to answer, inside his brain:

"I could not stay with them, Harry. They were too cruel."

"Are you sick, Percy?"

"A little. The man who saved me caught cold. So did I, but we are comfortable here and I think I am going to have a wonderful time here, studying the culture of past ages."

"But you are an astronomer, Percy, and not an archeologist or anthropologist."

"I know. But for the first time in my life there is no sky! My friend tells me that above us are a hundred, two hundred feet of frozen snow and hail. Here all is light and comfortable, but there is no sky. I have to keep my mind active, so I am going to study for four months in their museums. They have every part of their past culture saved. And gold plates, Harry, with the past history of millions of years! My friend has been reading some of them. I thought at first he was teasing me; so I asked him to read me the astronomical records. Of course, he could not read them all, but the few he did read were very interesting and extremely probable. The man who saved my life has promised not to kill himself till the summer comes, when he can bring you and Miss Carter here to be with me."

"Extraordinary! But where are the Conquerors?"

"I don't know, but I know this: I am through with them. Is Miss Carter there?"

"Yes, indeed. By Jove! Indeed she's here."

"Give her my best regards. Tell her I have something in mind concerning her. It will have to wait till this winter is over."

"Good-by, Percy, old top."

"Good-by, Harry, dear lad."

Of course Miss Carter, who was watching the Englishman, heard only one side of this conversation. He put the box on the table and turning to her, remarked:

"He is safe. I wish I were with him."

"That is just like you!" exclaimed Miss Carter.

When They Awoke

THE Conquerors as a nation had become great through establishing the principle that the nation was greater than the individual and that in every case that idea of supremacy must be carried out. For eighty thousand years there had been no such word as "failure" in their national vocabulary.

All those years their warfare had consisted of attacks on weaker races in which the element of surprise entered largely into the successful ending. For many thousands of years they had destroyed ruthlessly and without mercy, constantly making use of their greater intelligence.

In their first contact with the Monsters they had lost heavily from the ranks of their most important Specialists, because they had not properly protected themselves against this element of surprise. They had been on the offensive for so long that they had by now forgotten the technique of a proper defensive. The surprise over, the shock of defeat and retreat past, they had coldly plotted the annihilation of a race that was more animal than human, and had relentlessly followed the victory till they were certain that every one of the foes that had gathered to attack them had

been destroyed.

In history only the titanic happenings are remembered, and the real causes of these events are often so apparently unrelated to them as to be completely overlooked. In the final drama of races a careful study shows that all the factors contributing toward the ending were seemingly trivial in their nature.

We know that the Conquerors returned to their space car exceedingly fatigued after their victory over the Monsters, but well satisfied with the results of their campaign. They had lost many of their number, but the Monsters had been exterminated. At least, all who had attacked them were certainly dead. In other parts of Venus their fellows might still live on, but so far as that portion of the planet was concerned the race was destroyed. They could rest now, secure in the thought that they had followed an eighty thousand year tradition and destroyed an inferior race.

The space car lounged safely in the soft mud. With all the doors shut, there was nothing now to fear. The Conquerors slept on . . .

When at last they awoke, they saw through the windows a sky that was unusually gray and overcast. An open door showed them that it was snowing hard and was turning very cold. All the scientists realized at once what had happened. During the hours of sleep the Evening Star had turned a little westward. Oscillation had begun. The land that the space car rested on was slowly going into the shadow that would end in the total darkness of the long night.

But even then they did not fully realize just what that meant. They felt that all they had to do was to start a few of the rocket tubes, very gently shoot the car a few hundred feet into the air, turn it directly around so the nose would point east instead of west, and then sail eastward over the heated desert to the eastern strip of sunshine and warmth. There they were sure that living conditions favorable to life would be found, with possible new adventures and additional opportunity for scientific study.

THE Directing Intelligence gave the order and the power was gently applied through the lower rear rocket tubes. Every dwarf was in place, every condition was satisfactory. The nation of Conquerors were ready for another step in their interplanetary adventure.

Nothing happened.

The long cigar-shaped space car, its silvery sides glistening grayly in the gathering gloom, remained immovable.

In the pilot cabin the Directing Intelligence, one of the Co-ordinators, and the Specialists who were substituting for the dead Specialists sat waiting for the flight to begin.

Still nothing happened.

Far to the rear of the pilot cabin the throbbing of the power in the tubes could be heard. The space car began to tremble under the stress of power that was unequal to moving the burden in front of it. When the Directing Intelligence felt that tremor of the ship under him he cried to the chief mechanician of the ship:

"Turn the power off!"

Then he slowly moved his head till he looked directly into the eyes of the Aviation Specialist, seated near him, and asked:

"What is the matter?"

"I do not know."

"Then find out. If Percy Whitland were here, he would at least have an idea."

For the next hour every part of the machinery of the space car was carefully investigated. It appeared to be perfect in every detail. It was still the brilliantly constructed machinery that had so safely made the interplanetary journey from the Earth to Venus. The Directing Intelligence received the various reports in silence. At last he ordered the power started again.

Nothing happened.

Meanwhile it was growing darker, the wind was increasing in violence, the storm was every minute throwing thousands of tons of hail and snow upon the strip that was so rapidly moving into a Hell of dark desolation.

The End of the Conquerors

AGAIN the Directing Intelligence looked at his Specialists. It was now so dark that lights had to be turned on in the pilot cabin. There was nothing in the ruler's face to indicate fear. That, like all other emotions, was a psychic inability to the Conquerors. But in his eyes, way back in his large unblinking eyes, there was an expression of doubt. Then he said, after some moments of thought:

"This is what has happened. I should have known it would happen. If I had stayed here in the space car and not joined in the slaughter, it might have been prevented. Had Percy Whitland been with us, he would have warned us against it."

One of the Co-ordinators now did an unprecedented thing. He spoke without being asked!

"What happened?" he questioned. "And how could it have been prevented?"

"This is a very large car," answered the Directing Intelligence, "and it is very heavy. When we made our final stop, we did not have a marble platform for it to rest on; instead, we made a landing right on the ground. That ground was mud, rather stiff and capable of bearing our weight, but still soft enough to give somewhat under the weight of the space car. No doubt the car sank down into the mud a little. How far, I do not know. When we returned to the car after the slaughter, we were so tired that all we could think of was going to our cabins and securing some sleep. That is what happened."

"But what was it that happened?" insisted the Co-ordinator.

"We slept! How long? Too long. And while we slept oscillation started. We forgot that it would start. But it started during our sleep; and the part of Venus we rested on, in the mud, slowly passed out of the sunlight into the night. That is all that happened."

"But why can't we start?" again queried the dwarf.

"Because the temperature fell! When we came back to the car, it was exactly 55 degrees. I looked at the outside thermometer as I entered the car. Now we are in the middle of a blizzard. It is probably zero outside."

He paused. It seemed that he had not finished, and yet was unable to do so. But the words came out at last.

"*The space car is frozen in the mud!*"

"If that is all," declared the Co-ordinator, "we can tear ourselves out."

"We can if we have sufficient power," acknowledged the Directing Intelligence.

"Well, if that is all, we need not worry," commented the Co-ordinator. "Power? Why, we control the greatest power that the intelligence of man has ever been able to conceive of. We had power to shoot us through the Earth's atmosphere and from the Earth to Venus in a little more than half a month. Power? Certainly we have power. After the demonstration of power that the machinery of this space car has given it is ludicrous to think that we would be stopped by a little mud, frozen to the bottom of our car. *All we have to do is to use that power.*"

His confidence swept in a contagious wave over all the pilot cabin. What he said was just a little thing, but it was in harmony with the spirit of their national life. They

had never failed to use their power. They had never been willing to acknowledge that anything or anybody, power of the gods, feeble effort of men or superhuman forces of subterranean demons, could stop them.

Accordingly, without further thought, without the delay of a minute, the Directing Intelligence gave the order:

"Turn the maximum power into the four rear tubes."

THE mechanician pressed several buttons in rapid succession. The space car shook like a wounded prehistoric worm, and then, with a mighty roar that sounded through the darkness, tore itself out of its ice bed and hurled itself straight into the pitch-black of the Venusian night. It raged onward through the storm like a comet riding on the wings of Death, and ever in those rocket tubes was being generated the power that had hurled the car through the Earth's atmosphere at such a speed that gravitation was mockingly defied.

And back of the car, alongside of it, all around it was the Arctic blizzard, the hurricane, storming at a hundred miles an hour, but hopelessly left behind in the race with the snow-encrusted monster from the skies, the beautifully formed greyhound that had come so triumphantly, a visitor from the Earth.

There was a gleam of triumph in the eyes of the dwarfs in the pilot house. Once again they had won a victory, this time over the elements! Again intelligence applied through machinery had triumphed over the brute strength of even Nature herself.

"It was easy!" cried the mechanician.

"And we did it without help," chimed in the Co-ordinator. "If Percy Whitland had been here, he would have been given all the credit."

But the Directing Intelligence was peering ahead into the darkness as though he had failed to hear them. He suddenly spoke and in such a voice as to make them all turn toward him. His words were: "Stop speed and prepare to turn!"

It was his last order. One moment the car was dashing on through the darkness at the speed of a thousand miles an hour. The next moment there loomed just ahead a dense black mass. The Directing Intelligence saw it, but all too late. Head on, the most beautiful product of man's intelligence struck the boundless ice mountains!

There was an ear-splitting shock as though worlds had crashed together. The car crumpled up as if it was made of so much cardboard. Beams were ripped apart, machinery torn, furniture hurled far over the sides of the crippled Conqueror of Space. One second it had been defying time, space, and the gods; the next, it crashed to the ground, where it lay broken into a thousand splinters.

And the mountain of ice, that had remained sleeping for millions of years, that had passed an eternity of waiting for something new to happen—that mountain of ice, unchanging and unchangeable, was struck by the space car and *never knew it*. If it had had the power of thought, it would, at the most, have concluded that a larger crystal of snow than usual had landed against its lofty sides.

Most of the Conquerors were killed instantaneously. Though some lived past the first fatal moment, their lives were short. The shock had been too terrific. Fingers of frost crept waiflike through every torn gash in the sides of the destroyed beauty. A terrible cold penetrated the car, which in the journey from Earth to Venus had so successfully defied the elements. They died, those Conquerors, almost before they had time to realise what had killed them, died even before the twisted, tortured car reached the bottom of the crevasse which served as its final grave.

Down into that crevasse the storm drove the snow and sleet, inch by inch, foot by foot, until the car was buried deep to remain there in the everlasting night. And before many hours had passed a clean white layer of even snow covered the place where lay the space ship of the Conquerors. Not a trace marked its grave. One more nation had come to its end, a race of Super-men had reached its final doom, and it was just a little thing that had caused it all, just an insignificant thing that the Conquerors had laughed at, and defied its feeble strength—frozen mud!

CHAPTER XVI

Pleading for a Life

MONTHS passed. For the Old Ones buried under the snow in their warm dome-houses it was just another winter of quiet meditation. But to the interested visitors it was an opportunity to learn a thousand, ten thousand, interesting facts. The data once secured had to be written, and though both Miss Carter and Sir Harry had left the landing platform ill-prepared to write a history of their peculiar adventure, their hosts were not at a loss to supply them with writing material.

So the long hours passed, Miss Carter on one side of a table and the Englishman on the other side, both writing as hard as they could on a peculiar sheet of white metal with a pencil that made a very distinct black scratch. Long conversations would be held with the Master and his woman, covering every phase of Venusian life, and then the two anthropologists would start writing again, page after page, of their monumental work on the history of the social development of the Venusians.

The Master and the woman viewed the busy interest of their guests with undisguised pleasure.

"I suppose," admitted the woman, " that it is a feminine characteristic to talk. But we see our neighbors so seldom that we hardly have much opportunity to talk; and when we do see them there is nothing very new to talk about. So, it is really a pleasure to have you spend the winter with us, Miss Carter, and I wish that you would tell me more about the habits of the women on the planet you came from. Is it true that they change the style of their dresses every year?"

Percy Whitland was having an even more wonderful time with his rescuer in the City of the Dead. His mind had been trained for years in the making of accurate observations concerning things that were millions of miles away. Now shut off from his beloved heavens, he turned that keen power of observation on the little things that were right at his elbow. At times his keen interest and constant questions almost drove the Master frantic. It seemed that in his search for knowledge the little man was insatiable.

It was in the records concerning the development of radiant energy and the study of rays that Whitland found the greatest pleasure. Former generations of Venusians had made elaborate studies of astronomical matters and committed their knowledge to the gold plates which formed the library of the City of the Dead. They had died, but their knowledge lived on, perhaps for no other reason than to be read and studied by the astronomer from Flagstaff. The names were different, but, with that exception, all their conclusions closely harmonized with the studies that Whitland had made.

Percy Whitland, when he found these astronomical records, felt that he was among friends. Here had lived and died men, who, under more favorable circumstances, would have made the finest kind of companions for him. He marveled at the accuracy and minute details of their work, and voiced that marvel one day.

"I do not see how they had time to do it all. I have

worked at a killing speed for thirty years, and I have only been able to do a fraction of what I feel confident there is to be done."

HIS host laughed.

"You forget that those ancestors of mine were long lived. In those days it was no uncommon thing for a man to live to be ten thousand years old, and now, with our system of hygiene and dietary precautions, there is no death from disease. Many of the individuals of my race at the present time are over fifteen thousand years old. We only die purposely or from accident. Those old people had all the time they needed for their study."

"That must have been wonderful. I have enjoyed these months among these marvels with you as my teacher, but, do you know, I am just realizing how selfish I have been. For days at a time I have not so much as thought of my friend, Sir Harry, and have even forgotten the lady. When shall we be able to see them?"

"In another month the swing of the planet will begin again. After a few days of sunshine we shall be liberated. Of course, everything will be wet for a while, the river beds roaring torrents and all the ground soggy with water. The frost will come out of the ground and make the walking very bad. Two weeks after the sun starts to shine the fern trees will put out new leaves, and that is usually a sign that we can start to visit each other. I will take you there as soon as I can, and then I shall have to leave you."

The astronomer came over to the chair of the godlike man. With almost childlike timidity he took hold of his hand.

"Marco," he said, "you have been very kind to me all through these long months. You went into the fern forest to die, and instead of that you saved my life and made it possible for me to live during this winter. I have learned to love you. Now, with the summer at hand, I shall be very happy to be with Harry again, but it will make me more happy if you stay with me. I know that you still grieve over the loss of your lady and that it will never be possible for you to forget her, but I do wish that you would promise me to keep on living. I realize that you have promised to give me your plant servants after you die, and of course they are very capable; but after all, Marco, they have no souls, they are faithful simply because they have developed faithfulness as one of their instincts. Please promise me that you will stay with me, and continue to tell me about the wonders of this old planet."

The Master looked down at the little man. Then he took his free hand and laid it on the astronomer's head. His face became serious.

"That is a hard request to make of me, Percy Whitland. I would not consider it from any other living being—but you have been so very considerate of me and my feelings, you have shown such interest in the history of my race and such intelligent appreciation of the grandeur that was once ours, that I have to consider your feelings, and—, well, I will promise you this: that I will not end my life till you give me permission, or, perhaps, after you have left the planet."

The astronomer looked ahead of him. For some minutes he could not trust himself to speak. Then, with a catch in his voice and tears in his eyes, he replied:

"Thanks. That is awfully fine of you. Now suppose we arrange to leave here and join the others as soon as we can?"

They had to wait another week, and most of another. Then the Venusian announced that the sun was shining on the city that had been their home for so many interesting weeks of study.

"The sun is shining on the city," he announced, "but we cannot see it, because between the roof and the sunbeams lie a hundred, perhaps two hundred, feet of snow and ice. Yet, right at this moment that snow is melting as fast as though it were in an oven. The hour will come when we shall hear the crackling of the melting ice and then in a little while the sunbeams will again stream through the glass spaces of our domes. Even then we cannot leave at once, but soon after that we will start to join our friends. In the meantime, I think you had better start talking to them now and then. You have been so interested in your new investigation that you have not thought of doing that."

"They don't want to talk to me," laughed Whitland. "They have each other and their new studies and I am sure that they gave me very little thought, once they knew that I was safe for the winter."

"That may be true, but at least I would talk to them anyway. They were an interesting couple. Frankly speaking, I could not understand just what the relation between them really was. Were they mated?"

"No. Not in your sense of the word. They were in love with each other and thought the world and all of each other, but they were not mated."

And then he started to explain to Marco the theory of marriage as practiced on the Earth. He knew a lot more about the stars than he did about human relationships, but even the few facts that he told were sufficient to make the Venusian feel that somehow or other the average man and woman on the Earth were not so happy as they might be.

Finally the time came for them to leave. Rather regretfully the astronomer saw the door closed behind them leaving all those lovely treasures shut up till sometime in the far future chance and fate would again uncover them.

At the end of their journey they found their friends waiting for them.

CHAPTER XVII

A Meeting of a Learned Society

THE International Astronomical Society was holding its triennial meeting at Flagstaff, Arizona. The meeting was held there out of respect for their lost and presumably dead member, Percy Whitland. It was not a very large association, but the membership was exclusive and particularly intellectual. At the last assemblage Percy Whitland had been elected president. Between meetings he had mysteriously disappeared from his observatory and had never been heard from since. The remaining twenty-four members felt that no more fitting memorial could be paid to him than to hold the regular meeting near the observatory made sacred by the long residence of one of the most remarkable astronomers the world had ever produced.

On the second day of the meeting John Youngland, who for over fifteen years had been closely associated with the late astronomer of Arizona, but who, in spite of those long years of student life, was not considered erudite enough for full membership in the International Association, asked the new president for the privilege of the floor.

"Gentlemen," he began, "as you well know, the chief work of my master and teacher, Percy Whitland, was to prove definitely and beyond a doubt that life existed on other planets besides the Earth. There is no need for me to go into those ideas which originated in his wonderful mind, for all of you have heard him talk, seen his photographic plates, especially of Venus and Mars, and I, personally, know that most of you differed from him.

"He not only was sure that life existed on these planets, but he was confident that some day we should be able to communicate with the inhabitants of these planets. He

even dreamed of the time when he might be able to go to one of these planets and see for himself how close his fancies were to the real facts. He went so far as to give me a code which he would use in sending radio messages to me from one of those far off worlds. He thought it would be better to use a code than to attempt to make use of actual language which could be understood by the average expert.

"After his disappearance from the observatory, I and a few of our students constantly worked with our radio. We kept on experimenting with every possible wavelength. Some time later we picked up two messages which came in a great assortment of languages. A paper on those two messages was read by Duncan Forsythe before the International Association of Radiographers. He reached the conclusion that they were the work of an unidentified expert who was deliberately trying to fool the entire world. Perhaps you will recall what those messages were. I will refresh your memory. They were:

'Follow Number 85.'
'Protect Against 87.'

"I AM forced to admit that these messages meant as little to us in this observatory as they did to anyone else. But, in spite of our inability to understand their meaning, we kept on trying to receive other messages. *Last night they came*, and, to my astonishment, they were in the code which Percy Whitland had so often told me that he would use! We caught the message first when it was nearly over, and we almost died of grief when we realised how much of it we had lost. But as soon as it ended it began again and we heard the same words in code four times more. As the code is difficult, I translated it into English and placed it on a phonographic plate.

"I am going to ask you to close your eyes and try to fancy that it is the voice of Percy Whitland, late president of your Association, speaking to you. Please listen:

"Fellow members of the International Astronomical Society, this message is from Percy Whitland. I am on the planet Venus, having come here with the nation known as the Conquerors in company with Sir Harry Brunton and Miss Charlotte Carter. We came here on a space car. I want to tell you that Venus is inhabited by a race very similar to ours. Geographically the planet is very much as I described it in my paper on Venus before the Society in 1923. I have witnessed the phenomenon known as oscillation. Brunton wishes to inform his Government that he believes the danger from the Conquerors is over for the present. Impossible to return to Earth now, but will communicate occasionally. Trip started from Reelfoot Crater. This message being sent from the Venusian Observatory on peak of mountain South Pole Venus. If received, send answering signal. Will closely watch the Earth through three hundred inch telescope for one week. Would advise that Mallory Wright and John Ormond of 263 West 94th Street, New York City, guide a group of scientists to Reelfoot Crater to make a thorough study of the underground world of the Conquerors and prevent any possibility of those remaining on the Earth ever becoming a menace to our race in the future. Brunton suggests that all the colonies be located and studied. We may be able to return, but this is doubtful. Remember that the human race can never be safe till all the dwarfs are destroyed.

(Signed) Whitland."

To the credit of the Association it is only fair to say that they remained silent till the end of the message. Then they raised a riot that was remarkable, considering the fact that it was made by twenty-five men, most of whom were old, withered and anaemic specimens of manhood, despite their intellectual capacity. They crowded around John Youngland, they shouted at him, shook their fists at him and just stopped short of man-handling him. They shouted "Liar," "Fool," and "Scoundrel!" It was some time before they quieted down sufficiently for the President to express the sentiment of the Association. Quivering with rage, his voice trembling with passion, he turned on the young man who had had the temerity to present such a complete hoax to a distinguished gathering of scientists.

Youngland Denounced

"IF you think, you young fool," he shouted, "that you can make us believe any nonsense like that, you certainly are a moron. We liked your teacher, the late Percy Whitland, although we always thought that he was a little mad. We do not know where he is, but we hope that he is dead rather than in a home for the mentally afflicted, where you ought to be.

"Your whole message is a cunningly concocted fabric of foolish lies. You are a disgrace to your teacher and to the scientific world. I am going to ask the secretary to expunge your name and your speech from our records and not to put one word of it in our year-book. I am going to ask everyone here to keep silent about the entire affair, for if it found its way into the public press, we should be the laughing stock of the world. Shame on you! Shame for trying your April fool jokes on us! Now, gentlemen, the meeting will come to order and we will listen to the next paper on the programme, entitled, 'An Electromagnetic Study of the Cavity Radiation of Certain Stars in the Nebula of Andromeda,' by the Honorable Whitley Stonecrop, of Edinburgh University."

John Youngland left the building and returned to the observatory. There he was joined by a group of young men who had been students of Whitland. Their reaction was quiet, in spite of their anger.

"That is just the way things go in life, boys," commented Youngland. "A man spends his life doing a fine piece of work and finally succeeds in it. Then no one is willing to give him credit. There is just one thing to do, and that is to wait for more messages. The time will come when we shall be able to write a book about all this, and when we do, those old fossils will be sorry they called the whole message a hoax. We will, O, I am sure that we will, some day show them that we were right and that Whitland really sent it from Venus!"

"But how about the signal?" asked one of the workers. "He told us to send a signal if we received and understood the message. What are we to do about that?"

"We can't do anything now. He wants some kind of a flare sent up, but we are not able to do that by ourselves. A fire sufficiently large to be seen on Venus would have to be arranged for by a nation. All we can do is to wait for other messages and, in the meantime, trust our master."

Youngland waited that night till the observatory was quiet. He had asked all the students to retire early. The visitors had gone back to Flagstaff, as the meeting was adjourned for another three years. In the observatory everything was quiet. The perplexed, grief-stricken man, the favorite pupil of Whitland, slowly climbed the little ladder leading to the roof of the observatory. Step after step he went till at last he climbed out onto the little platform at the very top. Beyond him were the depths of space, deep calling unto deep, and star unto star. Far away the Evening Star shone in its delicate beauty. The man stretched out his arms towards Venus and cried:

"We heard you, master. *We heard you!* And we believe in you. We want you to know that we have your message!"

HE repeated it several times. It seemed to satisfy him.

Of course, the occurrence of the next half hour was a coincidence. It was one of those peculiar coincidences that lead to so much misunderstanding. A supposedly dead volcano in the Bad Lands of Dakota selected that very time to break forth into a terrific activity that shocked the entire western world and covered several states with ashes while the flames from a three-mile crater flung tongues of red heat thousands of feet into the air.

Youngland read a full account of the bursting of the Dakota volcano. He instantly appreciated the fact that a flame of this size might be seen from Venus through a three-hundred inch telescope. He also realised that it was possible his master would believe that it was an answering flare, sent up for no other reason than to inform him that the message from Venus had been received.

"I am glad for his sake," Youngland mused to himself, "that it happened just when it did. Had hell broken through the crust of the Bad Lands a week earlier, the master would have paid no attention to it, perhaps would not even have seen it. Well, no doubt he is happy. The thing for me to do is to hunt up these two New York men and give them the message. I wonder who they are and what it all means. No doubt they will understand. And who is Brunton?"

A week later, Youngland in New York located the two men and their wives. They understood, only too well, the advice contained in the message from Venus. Taking Youngland with them they made a hurried trip to Washington, where they had a long secret conversation with the President. It was thought best to ask the British Empire for co-operation, since Sir Harry had come to America as the direct representative of that nation.

After a delay of some months, made necessary by the complicated details of outfitting an exploratory group of scientists, the expedition started to Reelfoot Crater. Meantime the combined armies, navies and air forces of the two great nations of the Earth held themselves in readiness to render aid in this final effort to free the human race from one of the greatest perils that had ever confronted it.

CHAPTER XVIII

The Southern Mountains

THE Old Ones of Venus had gathered for a national conference on the topmost peak of the Southern Mountains. Here their wonderful observatory was located and from here they had sent the messages to the Earth and also received through the centuries the confused babble of noises and voices. During the late centuries they had been able, by using selectors of greater refinement, to occasionally hear and distinguish separate words and entire sentences.

They had yielded to the entreaties of Percy Whitland to try for a two-way communication with the Earth. Their experience with the Conquerors, while very scanty, made them feel that it would not be wise to directly invite any more Earthly visitors, but they sympathised with the astronomer and agreed with him that it would be interesting to determine whether communication could be established. Some future generation, either on the Earth or on Venus, might need the knowledge that such aerial transmission was possible.

Percy Whitland had been happy in the City of the Dead. But now on the Southern Mountain, high above the steam that rose from the heated desert, seated so he could look through the 300-hundred inch telescope at the Earth, he was more than happy. He was intoxicated with joy! The very fact that after thirty years of doubt he was able to prove that his surmises in regard to Venus were correct filled him with a deep satisfaction that was reflected in his every word and move. The Masters followed him around, happy in his happiness, for all of them had learned to love the little deformed man with the scholarly mind. Sir Harry and Miss Carter, completely overshadowed by the greatness of their friend, kept still, pleased beyond measure to find that after all these years of doubt and disappointment he was at last supremely satisfied with the results of his labor.

After making a thorough examination of the giant telescope and familiarising himself with its mechanism, Whitland was conducted to the transmitting room and placed before the recording and sending plate. The Masters and their women, Sir Harry and Miss Carter, stood around while Whitland was lifted to a chair so his mouth would be on a level with the center of the microphone. Then he started to deliver the message in a code language, clearly, even though his voice trembled. He repeated it four times. Then he turned around to his friends.

"This message is timed in a most peculiar manner. I did not realize the fact till last night. For years I have kept a careful diary, and since I started on this trip I have tried to keep oriented so far as Earth time is concerned. Last night I did some calculating and I believe that this message was sent to the Earth at the very time the International Astronomical Association is meeting. They were to meet in Arizona at my observatory. Of course, I cannot tell what change my absence made in their plans, but I am sure of one thing. When I was working in Arizona, I told my first assistant, John Youngland, that if I ever had a chance, I would talk to him in this code. I trust him. Up to the time of his death he will be on the lookout for the message from me. If he is alive today and caught the message, he will signal to us. Some way he will let us know that he has heard us."

THEN he asked the Venusian Master who had charge of the telescope to go with him to the observatory and assist him in watching the far away planet, Earth, for a possible signal. The rest of the nation left them alone and started in to discuss matters of general importance. They felt that a search should be made for the space car; that a more vigorous and concerted effort should be made to find and exterminate the Monsters and make the planet safe for their own nation. And finally they decided to adopt the three visitors from the Earth and make them real members of the Venusian commonwealth.

During those hours no one paid any attention to the receiving apparatus in the radio room. Had some one been there, they might have heard the pathetic message cried by John Youngland from the top of the observatory in Arizona. No one was there, and so the sound sped through space, unrecognised and unnoticed.

But it was not necessary. Whitland was at the telescope. The Earth, ordinarily visible from Venus simply as a brilliant star, was greatly magnified by the enormous telescope. It was possible to make out dimly her continents and oceans. Suddenly a little pin-point of flaming red shot up from the Earth, shot up into the outer reaches of the atmosphere and hung there like a jet of burning gas. Percy Whitland saw it, gasped and yelled to his co-watcher:

"The signal! The signal!!"

And thus the coincidence of an interstellar message and

(*Continued on page 1135*)

The Horrible Transformation

By J. Stallworth DANIELS

(*Illustration by Paul*)

"Hohenstein jumped out and ran madly away. Mustering my strength, I picked up the car with the racing motor and threw it after the fleeing man.

THE HORRIBLE TRANSFORMATION

"ANY mail from Africa, Peter?" I asked the butler. My question was put with the same air of expectancy that had accompanied it every morning for some months past.

"No sir, sorry, sir." Peter answered with a guilty look upon his face. He looked as though he were really responsible for the fact that I had not heard from my brother Bob ever since he had left on a scientific expedition for Africa, with his friend and colleague Dr. Hohenstein.

It was not unusual for Bob to depart for months at a time into the primeval jungles of Africa in the course of his studies in anthropology. This last venture of his, however, was somewhat different, and was graver in its aspect. He had been invited by Dr. Hohenstein, a student friend of his from the University of Munich, to go to the west coast of Africa to study the relationship between man and monkey. They intended, as he wrote me in his letter previous to leaving the European continent, to set up a laboratory in the heart of the jungle, not far from the village of Quitoa. In this laboratory they were to work to substantiate Dr. Hohenstein's theories, which Bob believed would startle the world with their immense scientific implications.

J. STALLWORTH DANIELS

The mere idea of two white men alone in the jungle, surrounded by unfriendly elements, subject to constant terrifying dangers, filled my heart with trepidation, and when twelve months had passed without any news from my brother, I could stand the anxiety no longer. I decided to act, and act quickly. I took the first boat going to that part of the world, intending to locate the place whither the two men had departed, and learn what I could of their fate.

Arriving six weeks later at the village of Quitoa, I found a typical African semi-European settlement. The rows of houses, representing the European part of the village, formed the only street of the settlement. All the elements that constitute an outpost of civilisation in the jungle country could be witnessed on this one street. There were the wine-shops, merchandise-stores, trading-houses and the dwelling-places of the owners. At the foot of the street, facing it as if trying to protect it from danger, stood the finest house of the village—that of the local official.

It being impossible to find anything resembling a hotel, I betook myself immediately to the official's house. The man received me with that cordial hospitality that is characteristic of all white men residing in God-forsaken corners of the world. He was glad to welcome a stranger, and when I told him that I had come to him for help and advice in a matter of life and death, he became very attentive and assured me that he was entirely at my disposal.

I TOLD him of my brother's expedition, his plans, and his disappearance. During the course of my recitation, a shadow clouded the official's face. He became very much disturbed and began pacing up and down the long room.

"Well, now, that makes matters somewhat clearer," he half-muttered to himself.

I turned inquiring eyes upon him. What did he mean by that remark?

"Mr. Henderson," he began, gravely, "please don't be too much alarmed by what I am going to tell you. I sincerely hope nothing serious has happened to your brother, although I feel that some steps must be taken as soon as possible to ascertain the explanation of some mysterious happenings. I remember very distinctly meeting about a year ago two gentlemen who fit the description of your brother and his friend. I heard of their plans to retire into the jungle for the purpose that you have mentioned, and I thought it my duty then to acquaint them with the dangers to which they were exposing themselves. The older of the two, presumably Dr. Hohenstein, seemed fanatically determined upon his task, so I wished them luck and success in their undertaking. From then on until about seven months ago I saw the professor several times a month when he came down to the village for supplies. I would see him coming up along the path which you can see leads from the rear of my house directly into the jungle. From the occasional conversations that we exchanged I perceived that he was a very eccentric person, self-centered and bent upon having his own way. When, some seven months ago, his visits to the village ceased, we thought nothing about it, ascribing it to his eccentricity, especially as we knew that he was well supplied with the necessaries of life for a considerable length of time. But—" he suddenly stopped, hesitating, a puzzled expression on his face. . . .

"Please continue," I urged, rising from my seat tense with excitement.

"I really don't know how to connect up the subsequent events," he continued. "About two months ago, the village was thrown into an uproar in the early hours of the morning by a fearsome sight. A huge gorilla, at least fifteen feet tall, came roaring into the village, chasing a white man and emitting the most horrible sounds."

"Fifteen feet tall?" I said, as[illegible]

The official nodded soberly.

"It may sound impossible and yet it's true—"

"Go on!" I begged him tensely.

"The white man was . . . Dr. Hohenstein. Before we were

ONE of the eternal mysteries of nature is her method of evolving forms of life from the lower to the higher. It is supposed by evolutionists that man evolved from a form of ape; although to the question how it was done or from what branch of the ape family, there is as yet no answer upon which all scientists will agree. There is little doubt, however, that man and the ape belong to the same family of animals—or that they at least have common ancestors.

If that is true, we have the fascinating possibility of being able, through studying the ape, to hasten its evolution into a more intelligent species. It may even be possible to interchange some of the characteristics of man and ape, so that man at least will be able to keep his intelligence, his higher spiritual feelings and emotions and yet be endowed with the great strength and endurance of the ape.

There are endless possibilities in the theme, and Mr. Daniels has chosen one of the most interesting of them and constructed about it a short but altogether intense and thrilling story.

able to summon help, the beast and his prey both disappeared from our view, and we could find no trace of either of them."

"But my brother, what of my brother!" I cried frantically. "Have you made no attempts to find him or to learn what happened to him?"

"We did what we could, Mr. Henderson. We penetrated into the jungle and found the laboratory and the living quarters deserted, with no signs of recent habitation. You understand how futile it would be to go on searching for a man in the impenetrable vastness of the jungle-forests. The entire affair began to sink into oblivion . . . until last week. Since then something strange, something inexplicable, has been happening.

"My house being in the direct path of the jungle, I have heard during the middle of the night strange, weird noises coming from that direction. Each night these noises seem to approach nearer and nearer to my house. They are unlike anything I have ever heard before. They seem to be coming from the throat of a living creature, with a savagery, a force and at the same time a tortured plaintiveness, that makes them unforgetable to anyone who has heard them once. At first I thought I was suffering from hallucinations, but as the weird cries became clearer with each succeeding night, other members of the community began to hear them too, and reported it to me. Some of the natives came into the village with stories of having seen strange footprints on the path leading to the village, others blurted out incoherent tales of having noticed lurking behind the trees a gigantic creature whose height according to the different reports was anywhere from ten to twenty feet. The entire community has been on edge for the past week and plans have been discussed how best to apprehend the creature, for it seems to be the same one that pursued Hohenstein two months ago.

The Cry in the Night

"THE situation is very curious. This mysterious creature seems to shy away during the daytime as if it were afraid of being seen. It has, so far, done no mischief, but seems content with merely coming near the village."

"Do you think that the appearance of this creature has any connection with the disappearance of the two men?" I asked him half-imploringly, as if expecting him to dispel those fears which I was reluctant to admit even to myself.

"It might have. At any rate, our men have agreed among themselves to fire two pistol shots as a signal as soon as any one of us catches sight of the creature. It occurs to me that we might be able to learn something if we could succeed in trailing the beast to its place of abode. In the meantime you had better rest yourself from your journey, for you may have need of your full strength in the very near future."

Weary with care and worry I walked up the stairs to the room to which my kind host had shown me. My mind was in an indescribable turmoil. Night was approaching with that tense, heavy silence so characteristic of the tropics. Tired in limb, my mind in a half-stupor, I managed to undress and sank immediately into a heavy sleep.

I must have slept for five or six hours, when suddenly I awoke with a start. I sat up in bed, staring terrified into the impenetrable darkness, shivering with horror. A shriek—a terrible, savage cry—resounded in my ears. Again it came. It pierced my heart with its note of despair, now crying out a pathetic plea, now laughing a savage, bitter laugh. My body was covered with a sheet of cold perspiration; I could neither cry out nor move my limbs, and I felt myself growing faint.

When I came to in the morning, everything at first seemed strange and unrecognizable. Gradually, however, the events of the past day and night came back to my recollection. I dressed hurriedly and came downstairs. My host had but to give one look at me to guess what state of mind I was in. Neither of us said a word, as we looked at each other understandingly. The day passed uneventfully. Night came again, and with it, fresh terror in my heart. My host and I decided not to undress that night, feeling, both of us, the imminence of a climax.

I lay down in bed, with my clothes on, now and then dozing off into a restless sleep, each time awakening with a start, expecting something to happen and yet unspeakably dreading its coming. I got up several times from bed, lit a cigarette and looked at my watch in the glow of the match.

My watch showed eleven o'clock. I was returning to my bed, when . . . once more the stillness was broken by that cry, that torturing, savage shriek—at first faint, as from a distance, but steadily coming nearer and nearer till it became a deafening roar, overpowering in its intensity, sending creepy currents of terror up my spine. Nearer and yet nearer it came until it seemed to be right upon me. It became unbearable; I could stand it no longer. Controlling my desire to faint, I groped my way through the hall to the stairs, where I met my host coming down, lamp in hand.

Hardly had we set the lamp upon the table when a horrible sight confronted us. In front of us, outside the window that faced the path, a hideous, monstrous face was peering at us. It was the face of a gorilla—a huge, ugly face broken up by innumerable furrow-like wrinkles which gave the skin an appearance of hanging down in fleshy bags. But the most striking thing about it was the eyes: those two eyes that looked at us with a pitiful, almost humanly pathetic and yet savage stare, imploring and hating, kindly and yet reproachful. Suddenly the monster opened its mouth and uttered a low cry that began like a joyful laugh, and ended with a cry of pain. Almost simultaneously two shots rang out from my host's revolver, but the monster instantly disappeared.

In a few minutes the entire small community was in an uproar. Men ran out half-undressed, shouting, gesticulating, pointing towards the jungle-forest. Finally, when some order was restored, several groups were formed, each man being armed with a torch and a revolver. All started out towards the forest. When we reached it, each group was instructed to choose a different direction. My own group, under the leadership of the official, took the route directly ahead of the path leading from his house into the jungle.

WE walked on in the oppressive silence of the sleeping forest, torches aloft, like a group of ghosts in a legendary procession. Walking and stopping, walking and stopping . . . listening intently to the noises of the forest dwellers whom we had awakened from their just slumber; walking and peering ahead into the darkness, each man gripping his pistol tightly, frightened by his own shadow which the torches threw on the ground.

We forged ahead unsteadily, each minute seeming an eternity when, owing to my inexperience in extricating myself from the dense undergrowth of the jungle, I stumbled against a thick bush and sprawled headlong on the ground. The impact of the fall stunned me for a moment so that I could neither cry out nor run after my companions. My torch was extinguished and I was alone in the darkness—lost, at the mercy of the savage beasts of prey! Before I had an opportunity to collect my wits, I sank in speechless terror—that laugh, again! O God! alongside of me, that blood-curdling laugh that I had heard outside the window. . . . I felt the stiffness of a nightmare pressing against my

chest; my very breath stopped, as I sat there, paralyzed, listening to what was now a low hysterical cry, that seemed pregnant with the sorrow and suffering of a torn human heart. Gradually the cry turned to a throaty gurgling as if the creature were trying to express its sorrow in speech. For moments of eternity, of breathless suspense, I listened to the guttural sounds of the beast becoming clearer, assuming definite shape, slowly changing to syllables and then into words! It was as if the forest itself had suddenly become human after millions of years of silence, and was pouring out its long-contained thoughts and feelings. I cannot but recall with terror those first words issuing from the depth of the surrounding darkness, words caressed as a mother caresses a long-lost child, words of gladness mingled with sorrow. They fell upon my ears like blows of a hammer, as I sat there awed and terrified, listening to the indistinct human speech coming from the throat of this strange being.

"At last . . . at last . . . a human being . . . I can speak! . . . Oh the happiness! . . . the joy! . . . I must hurry, they will soon be looking for you . . don't be afraid of me . . . I was once a human being! . . .

The words came laboriously and fast as if he were trying to say everything at once before he should again lose his power of speech.

"I had a great longing to see human faces . . . just to see them . . . I meant no harm . . . I followed you from behind the trees . . . I saw you fall . . . I knew that my only chance had come . . . my only chance of speaking with a human being before I die . . ."

The last words came slowly, resignedly. There was almost a note of satisfaction in that pronouncement.

"Death will be the more welcome, now that I have spoken again after all these months of tormenting silence . . . now that I will be able to tell my story to a human being . . . to send the news of my death to my brother in England . . . you will listen to me, won't you?"

"Yes," I answered half-audibly. My fear was gone and in its stead a sublime pity enveloped my soul. What on Earth was this being, this tortured creature? *Was it—was it . . .?* God! No! I was afraid to ask myself the question. It was impossible!

The Beast-Man Revealed

IN a moment my thoughts were interrupted by the now calm, even voice of the mysterious beast. The words came distinctly, clearly, only occasionally tinged with that inhuman, savage growl which lent them a weird and strange color.

"Twelve months ago," the voice began, "my friend Dr. Hohenstein invited me to come here to assist him in completing a long series of experiments he had been making. I found here a completely furnished laboratory filled with specimens with which to carry on our many researches. There were teeth and skulls and many fossilised skeletons, those mute but eloquent evidences of beings which once lived on the planet and which were now to be found in the beds of obscure streams and beneath the floors of abandoned caves. There were the remains of those monkeys which science knows to be nearest to man, which play and act like children, whose brain and blood most closely resemble the human counterpart.

"I was impressed by his rare collection of skulls, those of the white man, the negro, the yellow man, and their ancient ancestors. My friend had made special studies of the brain and had reached the conclusion that it lives on after the body has been destroyed. Furthermore he found that no serious difference existed between the brain of man and that of the ape—the difference being only a quantitative one. The human brain-cells are enlarged in certain regions and these enlargements make it possible for humans to speak, feel, understand and act intelligently. It is this difference that has made man human.

"Hohenstein knew the functioning of each gland in man and ape. He had preserved glands taken from man's body, and in his laboratory there were certain jars which contained those vital secretions which control the growth of the body."

Here the speaker hesitated, resting from the great exertion required for the uninterrupted flow of words, to which he was still not completely adjusted. I sat in a daze, crushed by what I had heard so far, doubting no more. He was indeed my brother, my own flesh and blood, in the guise of an unearthly, strange beast! He was suffering, pouring out his very soul, while I sat near him unable to help him, uncertain whether to divulge my identity! He resumed in a moment, speaking faster, animated by the remembrance of what was to follow.

"ONE evening, after finishing the day's work, he began telling me of his future plans. He had a theory that by grafting the brain and essential glands of a human being into the body of a young gorilla, he could endow the gorilla with an ability to speak intelligently and could stimulate an unusual process of growth in the animal. He would combine the cunning of Nature with her strength; would unite the highest attributes of the most rational being—man—with the great strength and unusual adaptability of his nearest relative. He went on talking for some time and as he unfolded his theory, his usually austere face began to be distorted with a fanatical enthusiasm which, by degrees, alarmed me, for I felt he was going insane! Occasionally, while he spoke, he would look up at me questioningly, and then avert his face—and I, alas, did not comprehend."

The beast broke off with a cry of anguish, his throat choking with emotion.

"How shall I describe what happened next? Suddenly breaking off from his description, Hohenstein suggested that we eat. During the meal he said nothing, but he glanced about furtively; and while I was watching his face, I began to lose my ability to see clearly. I struggled to get up, but the effort so completely exhausted me that I sank back gasping. He now gazed fixedly at me, and as I tried to call out to him everything went black. Then I had a feeling of being carried, of someone muttering to himself, when suddenly I felt a shock passing through my brain, and lost all consciousness.

"When I came to I heard slight noises, but when I tried to move I found myself bound to a hard flat surface. I tried to call out, but all I could do was to utter low guttural sounds. I had to wait . . . and in the tormentingly long hours that followed, I knew myself to be alive and breathing, but my body felt unaccountably strange. When dawn finally pierced the darkness, I saw a sight that convulsed me with unutterable horror. What was I? Was this myself? I knew I was there, for it was I that was thinking; but attached to my personality was the hairy body of an anthropoid ape! With a cry that was a scream of rage and despair I broke my bonds and dropped to the floor. As I lay there trembling, I knew what had happened.

"I—my brain—had been transferred into the body of a gorilla; my body was gone and in its place was the hulk of a seven foot ape!

"I fumed, raged and screamed, running about the room, tearing everything to pieces in the wild strength of an enraged beast. Then a slight sound arrested my attention. I halted, froth flecking my face, neck and chest, all atten-

tion and ready to spring at whatever should come in. The door slowly opened and Hohenstein cautiously slipped in.

"'*Stop!*' he exclaimed, pointing an automatic at my head.

"I had enough human reasoning power to stop, but my eyes never ceased blazing rage at him.

"'Now, there is no need of undue excitement,' he said, simulating his calm, deliberative tone of voice in a way to torture me to the point of madness. 'I wanted your brain for an experiment, and I have succeeded in my operation. Not only have I transferred your brain, but also the six vital human glands that control growth.'"

My brother, the beast, was breathing heavily, fairly sobbing out his words:

"Hohenstein did not appear again for a week. At morning and evening he opened the door and threw in food, but there was no communication between us. During this time my brain began to function more normally and I began to notice that I was consuming more and more food and was growing at an unusual rate. But I was very weak and there were days when I could hardly move, for my energy was consumed by the growth process. My only exercise was to experiment with my voice, which I found growing clearer every day.

Plans for Revenge

"MONTHS of endlessly torturing days passed, with my unceasing growth sapping whatever strength I possessed. Towards the latter part of the fourth month my prison-house became too small for my bulk and Hohenstein dragged me out with a block and tackle and placed me in an outside enclosure. There I was fed increasingly greater quantities of food until my body reached the amazing height of fourteen feet and my weight became proportionally great.

"During the fifth month, I became aware of a gradual change in my physical development. Periods of semi-consciousness alternated with periods of increased vitality which revived my hopes for revenge. It was forcibly brought to my mind that the growth was coming to a halt. For five endless months I had suffered—hour after heavy hour, day after weary night—a living death. Filled with bitterness, my despair grew, for I realized that unless I hastened my plans for revenge I might lapse too soon into a completely animal state of mind.

"Hohenstein noticed the decrease in my growth and sought to remedy this by feeding me tremendous quantities of food. At first I refrained from eating part of it, in the fear that the process I had suffered during the last five months would begin anew. But then I realized that food was increasing my strength, and so, with maniacal glee, I planned how I should bring about his horrible destruction all the more ably because of his own efforts. With my strength came a great agility and an ability to move stealthily, all of which I planned to use in obtaining my revenge."

Suddenly I perceived in the darkness the huge man-beast rising. He seemed to become more and more agitated with each word that he uttered. As he towered above me, he was now speaking fast, eager to finish his story, and becoming apprehensive for his safety. We could hear the distant muffled voices of my companions coming closer, probably searching for me now.

"The day of judgment came," he began anew. "Early one morning, when I thought Hohenstein would still be sleeping, I quietly climbed over the wall of the enclosure and was creeping toward the hut in which he lived when—'*My God!*'—I heard someone scream, and saw a ghostlike face peering at me from the window. I growled, and as my rage grew, I raised myself to my full height and called to him. He shrieked, rushed out of the hut and began running to the village.

"He suddenly bethought himself, ran to the automobile that he used occasionally to transport supplies in, started the motor, and . . . Just at that instant I leapt behind the car and, maddened by the fear of losing my prey, reached out and caught hold beneath the machine, lifting it from the ground. Hohenstein jumped out and ran madly toward the village. Mustering my entire strength, I picked up the car with the racing motor and threw it after the fleeing man. It hit far in front of him with a terrific explosion.

"I BEGAN running after him, deliberately prolonging the chase to increase his agony. I could almost hear him trembling, and as the knowledge of his helplessness grew on me, the beast's blood-lust was added to my human urge to revenge. On nearing the village I diminished the distance between us, giving him no chance to turn aside or to stop and call for help. We ran through the village and past it, when, finally tiring of the chase, I overtook him and reached for him with a roar. I was mad with rage. I had but one idea, one feeling, one urge—to KILL!

"'Spare me, Bob!' he shrieked, above my deafening growls.

"'Give me back my body!' I howled, picking up his violently shaking body and staring hungrily into his terrified eyes.

"'What — has — been — done — cannot — be — undone,' he stuttered with difficulty, almost incapable of speech in his frenzied terror.

"At this, unquenchable hatred filled me. I laughed brokenly. I snapped at him and rejoiced at the sight of the blood which came from his forehead where my fang had struck. I cursed him with human words— yet, as his screams rose to a higher pitch, it was the challenge cry of the gorilla that issued from my throat. My huge paw closed slowly around his body and my beast ears drank in as music the sound of snapping and grinding of bones and the tearing of flesh. My paw opened and I stared red-eyed upon the crushed mass that still lay quivering and moaning before me.

"Tiring as do all beasts of playing with my kill, and mastering the brute's desire to eat what was once my friend, I hurled the bloody mass to the earth with the victory cry of the gorilla, and fled madly into the jungle."

Silence . . . .tense, expectant silence, broken by the quick breathing of the ape-man . . . I was standing up now, fists clenched against my temples, trying to keep my head from bursting. I was weak with sorrow, unable to think, unable to talk . . . my brother so near me and yet so distant, thousands of years apart, going through the agony of hell, and I helpless and impotent . . . Again the voice from the dark-[redacted] . .

"In a few minutes you will cry out, your companions who are searching for you will find you and bring you back into their midst, into the midst of human beings, of human life . . . while I am leaving you, to go to my death—yes, to death! . . . How simple and welcome death sounds now . . . if only it would come sooner to deliver me of my misery! . . . Of late I have been subject to fits of madness and blinding dizziness that last for hours at a time. A terrific battle rages within me: a battle to death, my death. It is the structural conflict between my two hearts, the human and the animal, constantly sapping the energy of each and every organ—tearing them down, annihilating the too rapidly developed structures weakened by the sudden and overtaxed growth. The growth glands are dying; I can feel them failing from day to day.

"The thought of dying without having seen a human face or heard a human voice made me frantic. I could not restrain my cries of despair as I came nearer and nearer

to the village each night, longing until I would drop from exhaustion. Tonight I could contain myself no longer. I rushed to the window of the first house in my path—then came the two shots. You know the rest . . .

"But I am content now . . . I have spoken . . . I shall not be alone in my death . . . you will write to my brother, John Henderson, 27 Oxford Avenue, Liverpool . . . you will tell him of my death . . . that I was drowned, torn by a beast . . . tell him anything but the truth . . . I have spoken . . . and now we must part—you to return to life, and I to go into the jungle . . ."

His words echoed in the stillness of the forest, mocking me with their bitterness. Then, as a farewell, that piercing, hideous cry rang through the forest, sudden as a streak of lightning.

Attracted by the cry my companions came running in our direction. In a little while came a shot, then several more, and then a cry, a deafening heart-rending death cry. I knew . . . I understood . . . It was the end . . .

I was carried out of the forest in a semi-conscious state, babbling like a child, and was brought to the village, where I remained for several weeks, a sick man. When I felt strong enough, I was returned to my home in England, aged and bowed, never to forget that night in the forest.

THE END.

The Evening Star

(*Continued from page* 1129)

the sudden activating of a supposedly dead volcano made one man happy for the rest of his life.

He was still beaming the next morning when he talked the whole matter over with Sir Harry and Miss Carter.

"You have no idea what all this means to me," he explained, enthusiastically. "I worked a lifetime on this sort of thing, and my fellow astronomers all laughed at me. Now I have shown them that I was right. At last I am on Venus and I sent them a message;and they have shown me that they received and understood it. I have accomplished everything that I want to accomplish."

"My word! That must be a fine feeling," exclaimed the Englishman, glumly. "Now I cannot feel that way. You see, Miss Carter—well, what's the use of talking about it?"

"That's wonderful, Harry," she whispered, "but we can't marry just now. You know I haven't a trousseau."

"My word! What has that to do with our marrying? I will speak to the other ladies about it. We are going to be married in about six hours and—why, you make me feel like wilted lettuce! You run on and find what the ladies here wear when they marry, and I will speak to the men and arrange for a real wedding supper."

That evening Sir Harry and his bride were looking into space. It had been a wonderful wedding, and though the ceremony was a new one to the Venusian ladies, still they had dressed the bride in an ensemble that brought out all her delicate beauty. The banquet had been a complete

Whitland's Secret

PERCY WHITLAND took his friend's hand.

"You know one thing, Harry? I have been a selfish brute. I have been so interested in this adventure and so anxious to find out all the things that I didn't know that I forgot all about you and your happiness. I would determine to tell you and then something would happen and I would forget all about it for days at a time. But I am going to tell you now. When I was a young man, just after we parted at Oxford, I became a minister. Yes, a regular ordained minister. That was before I became interested in astronomy. But, once ordained, always ordained—so, if you and Miss Carter really want to be formally married I can marry you, and I am sorry I didn't think to tell you sooner. Will you forgive me?"

The Englishman picked him up and held him at arm's length in the air.

"Forgive you? My word! How can I ever pay you? Charlotte! What do you think? Percy is a regular minister! He is going to marry us!"

The little white-haired woman almost ran up to the two men.

Percy Whitland had secretly explained some details of an Earthly wedding to the Venusians and they had tried to make the ceremony truly an Earthly one. Presents had been given, rice and old shoes thrown and the bride had been thoroughly kissed by all the men. While a wedding journey was, for the time, impossible, nevertheless arrangements had been made for the new couple to occupy one of the dome-houses as a gift from the entire nation.

So that evening Sir Harry and his bride were out on the mountain, gazing into space. Cuddled in his arms, the little white-haired bride whispered:

"Aren't the stars beautiful, Harry? See! That star there. What is it?"

"I believe it's the Earth, my dear—our old home."

Sir Harry's bride sighed.

"Our old home! Shall we ever go back?"

Sir Harry held her at arm's length. He spoke soberly.

"Do you want to go back, Charlotte?"

Charlotte gazed wistfully into the night. "Perhaps," she said, with an enigmatic smile.

And with this typically feminine reply, she crept closer into her husband's arms.

THE END

See Spring, 1930, Issue
SCIENCE WONDER QUARTERLY
for details of $500 prize contest
"WHAT I HAVE DONE TO SPREAD SCIENCE FICTION"
Now on sale at all newsstands

The City of the Living Dead

(Continued from page 1107)

swimming in the skies, larger and larger, as his ship approached it.

"'You see the advantages? Man could achieve anything by this means; they could have the experience of accomplishing not only everything possible in actual life, but a great many things that actual life never holds even for the most fortunate. They could, if they were of the proper type, return to the cave-man period of existence and bounce over the hummocky moss in pursuit of the hairy rhinoceros, or float as disembodied spirits down endless corridors of an artificial Nirvana.

"'IN fact, there was but one thing the Machine Adventurer could not do: he could not return to the world. For the operations, once undergone, were practically irreversible. They involved, as I have said, laying bare every nerve of the body and by atomic bombardment making it an integral part of the silver wire that carried the false messages of sensation to it. To reverse the operation would naturally leave the returned Machine Adventurer deaf, dumb, blind and helpless, a mere living jelly. But nobody wished to return. The Adventure Houses, like this one, contained a vast store of records; the adventurers themselves were practically immortal and merely passed the rest of their days in a series of pleasing and thrilling experiences that always ended happily. Some of the more complex adventures, like those in which the subjects found themselves in the rôles of world conquerors, lasted over a period of years, and as soon as one was ended, the operators in the offices of the Adventure Houses switched the subject onto a new adventure.

"'People readily abandoned the outside world in which everything was rapidly becoming dead. The adventure associations died as quickly as they had been born. After all, the majority of men and nearly all women soon tired of the crude excitements these adventure associations provided. In a short time whole groups of people undertook Machine Adventures; and the world's population, which had been rising ever since the apes first descended from their trees, began to fall.

"'At this point the very scientists who had developed the Machines began to become alarmed at the great rush of people to use them. They advised the destruction of the machines and the substitution of some other method of providing thrills and adventures. But the governments of the world, successful and peaceful and secure as no governments had ever been before, turned their backs on the scientists and built more and greater Adventure Houses. The scientists attempted to appeal to the people over the heads of the governments. The people laughed at them; and the governments paid no attention until one group of Oriental scientists, more devoted or less prudent than the rest, destroyed the great Adventure House at Chien-po by concentrating destructive rays upon it. This roused the governments to action; they rounded up all the disagreeing scientists and instead of executing them, forcibly operated upon them and placed them in Adventure Houses.

"'The battle was a losing one on the side of the scientists from the start. One after another they grew old and abandoned the hopeless struggle, preferring themselves to enter the Adventure House and have a couch of ease and pleasant experiences.

"'I cannot, I am afraid, picture for you the universal decay of every kind of life save that furnished by the Adventure Machines. Adventure Machines for even the little children were produced. . . . After a while it became difficult to find operators for the Machines; cities and towns were practically depopulated. Even the black barbarians succumbed, for they had their Adventure Machines as the white men had theirs. In the Machines, be he never so fond of the pleasures of life, every man found every pleasure enhanced to the nth degree. The glutton, the drunkard, the man mad over women found here his own special paradise. Everything else became useless . . .'

The Demon Power

"WITH these words," continued Hal Halstrom, looking over the hall, "the voice of the man with the metal face trailed off and he sat babbling in his chair like one grown mad. So I even let him babble on, while I sat in silence. And after a time he rose and prepared meat for us and we did eat.

"But still some doubts and questions troubled my mind, how such things could be; and I asked him: 'How came it that you escaped to tell this tale?'

"'I did not escape,' he said, touching the metal mask that covered all his face. 'Don't you see this? It is the badge of my own servitude to the Machines. I, no less than the rest, underwent the operation. And oh, the delight of it! For I was born by the shore of the sea, and in my adventure I swam forever among the green depths and saw strange monsters. I would willingly have been left there. But a day came when the last of the operators of this Adventure House died, and the three surgeons, who were all that were left, took me from the Machine and brought me back to this cruel world, for I was in those days an engineer and they needed me to operate the Machine. For my eyes they gave me these Machines, for my ears other Machines, and the tips of my hands and feet—all, all, I am a Machine! The mark of the Machine is on me. . . .'

"He cried these last words so wildly that I was fearful he might again fall into his insensate babbling. So I broke in upon him. 'But these Adventurers,' I asked, 'how do they eat?'

"His lip curled with scorn of my ignorance. 'In truth,' he said, 'you are a barbarian of the early ages that do not know of the D'Arsonval diathermic method. Know then, that among the silver wires on each Adventurer's leg is clamped the end of an electric circuit, and at such times as meals are necessary, they are given electric meals of low and high frequency currents. I tell you because you ask, not because you will understand.'

"'Ah,' I said, for in truth I did not understand. 'And what is your work here?'

"'I change the adventures and see that the machinery does not break down.'

"'But there are thousands of the living dead above. Do you change all the adventures as they run through them?'

"The man with the metal face hesitated and stammered as one in embarrassment. 'I am supposed to,' he said finally, 'but I am all alone now. It is too much. These few'—he waved his hand at the board on the wall, 'were friends of mine once, and their adventures I change.'

"'But what makes the Machines run?' I asked, seeing that he was cast down and wishing to draw him from his thoughts.

"'Power,' said he. And then I shuddered, for I knew in good truth that I was in the very lair of that Demon.

"'But where does Power come from, and who is he?' I asked, as boldly as I might.

"For answer he took me by the hand and led me out of the room and down a dizzy flight of iron stairs—down—down—to the very bowels of the earth. Finally he stopped and pointed. I saw a long shaft with a ruddy glow far

at the base, and as I leaned over the iron rail a pebble that had somehow caught in my pocket tinkled from it against the rail and fell downward. I never heard it strike.

"'There is the source of Power!' cried the man with the metal face. 'The earth's central heat—for this world is fiery-hot at its core, and our scientists learned long ago how to tap it. I doubt me not that the first tapping was one reason why the mountain rose against your dale.'

"WITH that we fell into conversation on this thing and that, and I stayed with him for many days.

"In the end I was fain to return to my own place, but knew not how to surmount the Mountain of the South again, so I begged the man with the metal face to help me out of the wisdom of the Anglesk.

"He thought on it for a time and said that he would help me, but when he would show me how to escape over the mountain by means of Power, I refused. So he thought out another plan, and offered to show me how to build these wings we now use, on condition that I do a certain thing for him—namely, take him with me so that he might look again upon the faces of living men and women, and hear them talk. I agreed to this and thereupon we left the living dead to repeat eternally their empty adventures.

"The man with the metal face was stricken by the brilliance of the day when outside, and not a little overcome at the appearance of those mighty towers. Yet the thought of meeting living people sustained him and he showed me the trick of these wings, calling them gliders, and training me in their use until I could fly with the mboth fast and far, soaring down the currents of the wind like a bird. Thereupon we set out for the Mountain of the South and for Alvrosdale.

BUT ere we reached the place, the man with the metal face sickened and died; for we had exhausted such of his food as he brought with him from the tower, and the flesh of sheep and swine was over-rough fare for him. So perished the last of the Anglesk, and on his death he gave me this Machine with a voice, which he called an 'alarum clock,' to be a perpetual memento of the terror of Machines and the folly of the Anglesk.

"The man with the metal face I buried by a pile of stones, then buckled my wings to my back and soared away.

"But when I returned to Alvrosdale bearing on my back the wings that were the proof of my tale, there was great hurry and bustle, and many would have taken the eagles' causeway outward as I had taken it inward, for in those days the dale was so crowded with folk that many could not have good fortune. Nevertheless the land would lie fallow if all went, or even a great part, and some must remain behind to care for those who returned broken in spirit or in body. Therefore this ceremony and the examinations through which you have passed were instituted. Each year the dale chooses of its best and boldest, and to them is told the tale you have heard before they start on the long journey. Now I leave you—and good luck attend your flight; but bear in mind that the villages and Machines of the Anglesk are accursed and belong to the living dead until their towers shall topple to the ground. Farewell."

With these words the old man sat down as one exhausted with long speech and with the memory of the trials and terrors of the past.

The dawn was streaking palely along the eastern windows of the Hall of Assembly, as the hearers of the tale arose and made their way gravely to the door.

In the doorway each was met by one who gave him a scrip of food, a pair of skis and a set of wings, and one after another they spun down the snowy hill, away from the Hall, to gather speed and finally to soar aloft in the clear wintry dawn, over the Mountain of the South, out into the dead world, with their cargo of new hopes and fears and aspirations.

$100.00 in GOLD for a SLOGAN for

Science WONDER Stories

A few moments of your spare time NOW may bring you $100.00 in gold.

WE want a catchy slogan for this magazine. Slogans are now used universally in many different lines of business; we believe that this magazine should be known by its own slogan.

Such slogans as "Not a Cough in a Carload"; "Good to the Last Drop"; "Say it with Flowers"; etc., are well known. A number of magazines have already adopted slogans, such, for instance, as *Popular Mechanics*, with "Written So You Can Understand it."

REMEMBER, THERE IS NOTHING TO BUY OR SELL!

You have an equal chance to win this prize, *regardless of whether or not you are a subscriber* The contest is open to all. Get your friends in on this and, if they give you suggestions, you may split the prize with them, if you so desire.

To win the $100.00 prize, you must submit a single slogan, *one only*. It must be an original idea. It makes no difference who you are or where you live, whether in this country or not, anyone may compete in this contest and you may be the winner

Look this magazine over carefully and try to find out what it stands for, what its ideals are, and what it tries to accomplish. Then try to put all of your findings into a slogan which must not, under any circumstances, have more than seven words.

After you have the idea, try to improve upon it by shortening the slogan and making it sound more euphonious, but always remember that it is the idea which counts. The cleverer the slogan, and the better it expresses the ideas for which this magazine stands, the more likely are you to win the prize.

No great amount of time need be spent in the preparation of slogans. Start thinking right now and jot down your thoughts. Also, tell your friends about it, and get them to submit slogans of their own; or compose one in partnership with them.

Here are a couple of sample slogans; which are given as mere suggestions, and not to be used as entries

"THE MAGAZINE OF SCIENCE FICTION"
"SCIENCE TAUGHT THROUGHT FICTION"

RULES FOR THE CONTEST

(1) The slogan contest is open to everyone except members of the organization of SCIENCE WONDER STORIES and their families.
(2) Each contestant may send in only one slogan; no more.
(3) Slogans must be written legibly or typed on the special [redacted] published on page 1143 of this magazine. (If you do not wish to cut the magazine, copy the coupon on a sheet of paper exactly the same size as the coupon). Use only ink or typewriter; pencilled matter will not be considered.
(4) Each slogan must be accompanied by a letter stating, in 200 words, or less, your reasons for selecting this slogan.
(5) In case of duplication of a slogan, the judges will award the prize to the writer of the best letter; the one which, in their opinion, gives the most logical reasons for the slogan.

This contest closes on May 1, 1930 at which time all entries must be in this office; and the name of the winner will be announced in the July, 1930, issue of SCIENCE WONDER STORIES, on publication of which the prize will be paid.

Because of the large number of entries which may be expected, the publishers cannot enter into correspondence regard this contest.

Address all communications to

Editor, Slogan Contest,
Care of SCIENCE WONDER STORIES
96-98 Park Place, New York, N. Y.

Science Questions and Answers

THIS department is conducted for the benefit of readers who have pertinent queries on modern scientific discoveries and on established scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical, also to print answers as soon as we receive questions. However, questions of general interest will receive careful attention. If you desire individual answers to your queries, enclose 25c in postage to cover time and mailing.

Radio-Active Metals

Editor, Science Questions and Answers:

1. What other radio-active metals are there besides radium?

2. Where could I get an English translation of Einstein's latest "field theory?"

3. Please explain how the Roentgen-ray tube works.

Mason S. Curran,
939 Amelia Avenue,
Akron, Ohio.

(1. The best-known radio-active metals other than radium are uranium and thorium. These, like radium, are spontaneously disintegrating, by shooting off rays. Radium and uranium give off a ray in the form of helium, among other rays. A given mass of uranium will lose half its substance in 5,000,000,000 years, changing to another element, known as uranium-X1 and helium. Half of this will change in less than a month to uranium-X2, and so forth. Thorium disintegrates in the same manner. The final remaining products of radium, thorium, and uranium are radio-active lead.

2. We suggest that you consult the Encyclopedia Britannica under "Einstein" for a bibliography of his published works. The latest edition of the encyclopedia will give this information. Or you might consult the German edition of "Who's Who" [Wer Ist's?] and under the name of the scientist you will find a list of his works. As to the English translations, these can probably be found by consulting the library; or by writing to the scientific libraries of the great universities—Columbia University [New York]; Harvard University [Cambridge, Mass.] or Yale University [New Haven, Conn.]

3. The Roentgen-ray or X-ray tube is an improved Crookes tube [see illustration]. It is a large, elongated bulb, in which a vacuum has been produced. A current of high voltage is then passed through this tube, and a stream of electrons, or "rays" shoot off from the negative electrode, called the cathode. These rays are so powerful that they would melt the glass of the bulb if they struck it, and so an "anti-cathode" is provided—a body of resistant material which acts as a target for the rays, and reflects them. But this impact of the rays against the target produces another type of ray—the X-ray. It was found accidentally that the X-rays, which are of extremely short wavelength, can pass through flesh, paper, and other materials composed of elements of low atomic weight. When these opaque rays are used on the human body, as the Roentgen or X-ray, they penetrate as far as the bones, or other material through which they cannot pass. In X-ray photographs, therefore, the bones stand out as dark lines and masses against the light-gray background of the flesh and tissues.

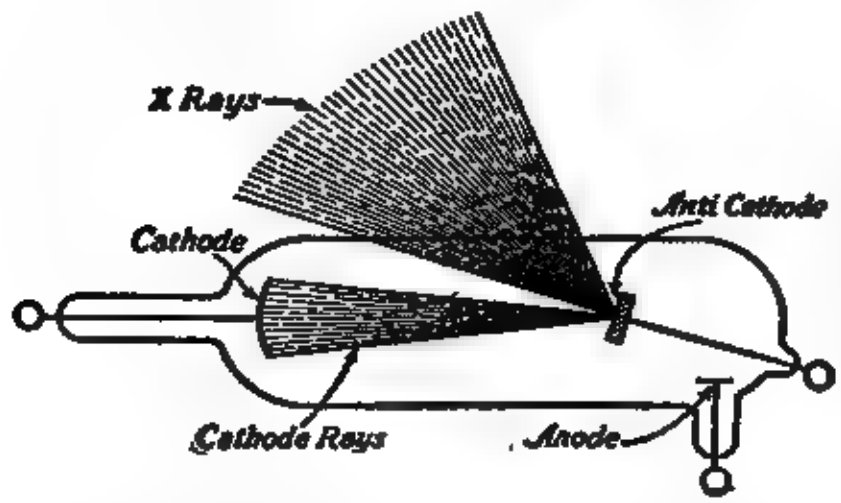


Diagram explaining Roentgen Ray apparatus. From "At Home Among the Atoms," by Kendall. (The Century Company)

The illustration shows, in simple fashion, how the X-ray tube works. The cathode is the point from which the electrons enter the tube as a ray. The anti-cathode, the shaded section, is the target for the rays.—Editor.)

Beginning of Life

Editor, Science Questions and Answers:

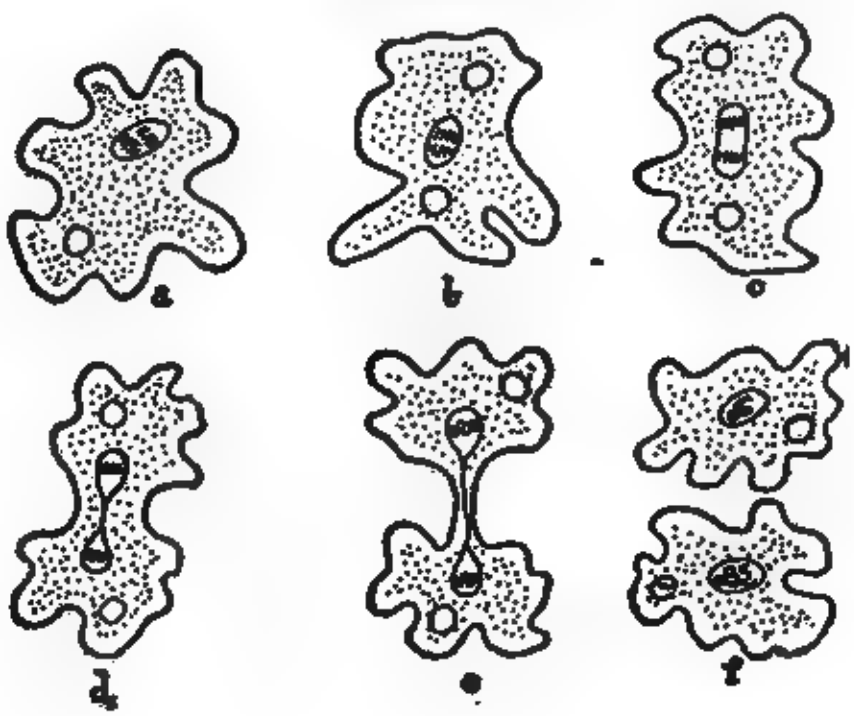
I do not understand how basic forms of life—such as the *amoeba*—can multiply and reproduce if there is no such thing as sex in those lower organisms. Can you explain this to me, if possible, with illustrations?

I can understand how flowers and certain plant life can be fertilized by an indirect medium, such as bees and insects, but this method of reproduction can be likened to that of the higher species in nature. I have read, too, that there are lower organisms in nature which are termed bi-sexual—that is, they carry the potentialities of both sexes.

But when we descend to the primary forms of life, it seems impossible that there can be any reproduction without a male and female type, whether these are incorporated in one organism or two. I understand that you have on your staff many scientists who are capable of explaining such things, and I would be very much obliged if this letter will receive your attention.

Ned Katelin,
Pasadena, Calif.

(We illustrate the method of procreation on this page. It is true that there is in the amoeba, no such thing apparent as sex. When circumstances demand it, and they often do, amoeba proceeds in a most leisurely fashion. It seems to acquire a waist, to grow narrower about the middle. Slowly this portion gets thinner and thinner. After many minutes, sometimes only after hours, its two newly formed portions, each of which has a half of the old nucleus, separate from each other. These parted portions afterwards lead an entirely independent existence, and soon grow to the size of the original cell. The two parts are of the same size. It is impossible to think of one of them as the original and the other as separated from it. The original has broken up into two, which are equally old, equally new, and equally important. In other words, the mother cell, (so called, though it is neither mother nor father) has become TWO daughter cells (though they are no more daughter than son. The old cell did not die—the new ones were not born. The big cell grew into two smaller cells, and both of these in turn became big ones.—Editor.)



Illustrating the reproduction of primary forms of life by division. Diagrams A to F indicate successive stages of reproduction.

IN this department we shall publish every month your opinions. After all, this is *your* magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips up occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old-fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail, no communications to this department are answered individually unless 25c in stamps to cover time and postage is remitted.

About "Mystery, Adventure, Romance"

Editor, Science Wonder Stories:

I must say that I was glad to note the few changes that distinguished the April cover from its predecessors. It calls to mind an idea that had been in my mind, but because I was not certain that I was right about it, I said nothing. I will tell you the idea and then illustrate how nicely you have dealt with it.

You know, it seems to me that there is a group of people in this country who are science fiction "fans" and they constitute the bulk of your readers. The general public to whom you should make your appeal is not interested in your magazines (I include Air Wonder Stories) because the magazines have appeared too forbidding. The machinery on the cover, the mechanical illustrations and mysterious but undescriptive titles made the man on the street feel that here is something which has absolutely no appeal for him. And mind you, I refer to the intelligent man as well as the moron. My opinion was that the man who was not scientifically trained or minded was repelled by your magazine because he could establish no *mental communication between his own experiments and what you showed your magazine to be.*

That always seemed to me to be a pity because if science fiction is a good thing, you must cater not only to the fans who already understand and appreciate it but also to the general public who aren't interested or attracted as yet. For no big movement, such as science fiction, can make any headway until it has a wide popular support.

Therefore when I saw your streamer, "Mystery, Adventure, Romance" I saw that you too had been thinking about the same thing as I. And I hope that that is all the streamer means; I hope that there will be no change in the type of story or the general policy of the magazine. Am I right?

Morris Ginsberg,
2400 Wayne Avenue,
New York.

(We think that Mr. Ginsberg has caught the main purpose in "the streamer" as he calls it. Our purpose is only to show that science fiction is not "a forbidding thing" but, something that any intelligent person can understand, appreciate and enjoy even though he has no scientific education. Let us say that *we have no intention of lowering at all the same high standard* that we have maintained since the inception of the magazine. Let that be understood once for all.

If there is any change in the stories, it will be to make them more interesting. We have never believed in, or allowed long, dreary, windy scientific discussions to intrude themselves at the wrong point. In other words the stories will have the same high level of scientific accuracy and truth; but if they are changed, it will be to make them more interesting.

We feel that mystery and adventure and a spice of romance are parts of our stories, in fact they should be parts of every excellent science fiction story. And because we are determined to see science fiction, as a movement, sweep this country (as instanced by our $500 Science Wonder Quarterly contest and the Science Fiction Week, now so successfully finishing) we want to enlist the support of the general public. We hope that, our stand, is quite clear to Mr. Ginsberg and all others. OUR MAGAZINE REMAINS AND WILL REMAIN THE SAME.—*Editor.*)

The Color of Space

Editor, Science Wonder Stories:

I have noticed in your last few issues a line or so which I take to be an error. You have stated that the color of space is black.

Black is a combination of all the colors of our sun which are visible to the unaided eye. Our scientists have proved that few suns give to the other the same colors that their neighbors emanate. Therefore, as Sol is a comparatively insignificant sun, its compounded colors would be unlikely the *quotyfyles* of outer space.

Moreover, what proof have we that the colors emanated by the sun are black (in compound)? There are probably quite a few colors emanated by the sun which, although visible in outer space, cannot penetrate our atmosphere. In fact, chemistry proves exactly such things to the observant.

There. Now that I have finished that I can go on to more comfortable themes. I have read nearly every issue of "our" magazine since its debut. It has enjoyed a greater and more deserved success than any other science fiction magazine I have ever read. Of all stories it has yet printed I have liked "The Conquerors" by Keller best. I have read most of his stories and thought them on the whole very interesting.

Charles B. Busey,
604 West Green St.,
Urbana, Illinois.

("Black" is not a combination of colors—it is merely "lack" of color. In fact, when we say that an object is black—we mean that we are not aware of any stimulation to the nerves of the eye. Therefore when we speak of the color of space as "black" we mean not a composite of colors for that is "white" but an absence of color or an absence of illumination coming from space—and when we say black we mean that zone which reflects no light whatever—absolute black.—*Editor.*)

ON LETTERS

BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents, therefore, to make their letters as brief and to the point as they can; as this will aid in their selection for publication? Wherever possible, we will print the letter in full, but in some cases, where lack of space prohibits publishing the complete letter, we will give a résumé of it in a single paragraph.

The Scienceers

For the benefit of science fiction fans living in New York and vicinity, an organization known as The Scienceers has recently been formed. The purpose of this club is to provide a common meeting-ground for scientifically-minded persons, and to foster discussion of modern developments, theories and projects in the realm of science.

Especial attention is being given at present to the fascinating subject of interplanetary travel and communication, a topic as yet undreamed of by the general populace. Before this idea can be realized, the public must be educated to understand and appreciate its significance. While the actual work involved in achieving interplanetary communication will be done by trained scientists, popular support is absolutely essential to the success of any such undertaking. The Scienceers' association, wants to assist, as part of its program, in spreading the doctrines of inter-planetary travel.

The activities of the club, however, are by no means limited to this sole interest. Many other entertaining pursuits are available to members, including access to the club library, which contains a fine assortment of scientific literature, both fiction and non-fiction.

The organization is open to all persons over sixteen years of age, regardless of race, creed, sex or color, who are interested in the popular, non-technical side of present day science. Further information may be obtained by writing to the undersigned.

Allan Glasser,
Secretary, *The Scienceers,*
981 Forest Avenue,
New York, N. Y.

(We print this notice, and would like to add our enthusiastic support of this group of earnest, sincere young men. We think they merit the support of all who are interested in science from the point of view of the layman.—*Editor.*)

Disagrees with Mr. Truhart

Editor, Science Wonder Stories:

After reading the March copy of Science Wonder Stories I must say that I was not particularly impressed with it. I would rather have a smaller magazine and good stories than to have the magazine filled up with amateur trash. The concluding installment of "A Rescue from Jupiter" was masterful, much better than the first installment. "Before the Asteroids" was also very good; the other stories were not worth printing and struck me as being put in to fill up space. Before I forget I would like to suggest that Mr Edwards write a sequel to "A Rescue from Jupiter," I could appreciate some more stories from him. Please do not print any more stories like "The Vapor Intelligence" and "The Ancient Brain" which have no plot and no real scientific value. Since everybody seems to be discussing Dr. Keller's latest stories "The Human Termites" and "The Conquerors" I will add that they are both wonderful and are typical of the kind of stories I would like to have.

I do not agree with Mr. Truhart regarding the editorials and scientific articles. I am always greatly interested in the editorials and get much information from "Science of the Month" which I would not find elsewhere. Please continue these departments. I thoroughly endorse Mr. Simmonds' letter regarding Dr. Keller and repeat that I wish you would keep in mind that this magazine is printed for intelligent thinking people and not to catch the fancy of every "dumb Dora" that sees the "funny picture" on the front page. In reference to the Prize Contest I think you used good judgment in awarding first prize to Charles Tanner on his essay "The Color of Space." I was glad to see that the April copy will contain stories from two of my favorite authors, Dr. Keller and Hart Vincent. I cannot wax enthusiastic over Francis Flagg, however. "The Land of the Dipos" struck me as highly imaginative; the author was too vague regarding the method, and the place to which the men were transported. With best wishes for success, I am—

Wayne D. Bray,
Campbell, Missouri.

(We are glad our judgment on the cover contest is vindicated by Mr Bray. The "Land of the Dipos" has received much criticism—both favorable and otherwise. We appreciate these letters and would like to have some more opinions on this story.—*Editor.*)

(*Continued on page 1140*)

A NEW IDEA IN BOOKS

Have you still read the interesting and unusual experiences that happen behind the closed doors of a doctor's inner office. Written in diary form by Maurice Chideckel, M.D. Unbelievable but true.

Dr. David H. Keller, M.D. discusses such important topics as Sexual Physiology of the Young Man, Love and Marriage, The Normal Sex Life, Psychology of the Young Girl, Companionate Marriage and dozens of other important topics from a scientific standpoint. Contains the best and most advanced thoughts on Life and Reproduction of interest to everyone — enlightenment on every page.

So few people today know the schemes introduced by the racketeers—and the astounding success with which they attract tremendous sums of money from people. Only government inspectors and agents are familiar with their methods of extortion—the baffling ways of the racketeers. In RACKETEERS dozens of outstanding schemes and the names of the leaders are exposed.

SNAPPY HUMOR is a collection of the world's best wit, culled from periodicals of every language. It contains the cream of the world's girth, French, German, English, etc., etc., with rich and snappy illustrations, also many varied stories. Over 700 Original Illustrations. Plenty of laughs — thrills on every page.

JUST 33c FOR A $2.00 BOOK

NO FICTION

Join the Popular Book Club

The POPULAR BOOK CLUB is the latest and most unique book club which, during the course of the year, will bring to you the most outstanding and diversified books printed at the present time in this country.

POPULAR BOOKS aim to educate you and entertain. They never contain fiction. They are all on SPECIAL SUBJECTS. Each book is compiled by experts. Every book contains far more matter than the usual $2.00 book, and gives you a wealth of material for the price of a high-class magazine.

Every month (about the 20th of the calendar month) a new POPULAR BOOK is published.

NOT SOLD AT BOOK-STORES

The merchandising of these books is unusual. They are never sold at book stores, but are for sale for the uniform price of 33c each at every large newsstand in this country.

For those who do not wish to buy at newsstands, we now have a special subscription offer. Many of our readers who cannot conveniently take the time to buy these books at the newsstands have urged us to sell them by subscription; and for that reason it is now possible to subscribe in advance for these worth-while books at

A TREMENDOUS SAVING!

If you bought twelve of these books on the newsstands, the price would be $4.00. By subscribing for them in advance, you save $1.68. By subscribing in advance you are certain to get a worth-while book every month; for in many cases you would find the books sold out on the newsstands, and frequently the books are then out of print and no extra copies are available.

On this page are shown a few of the POPULAR BOOKS which have been issued so far. A number of most interesting and unusual books are now in preparation.

All books are uniform in size—the large (9x12-inch) page which is a favorite with readers; heavy and durable paper only is used, and the type is selected for its readability. The covers are always in four colors and varnished to keep from soiling. The majority of POPULAR BOOKS are profusely illustrated. BEFORE YOU FORGET IT, FILL IN THE COUPON AND SAVE MONEY.

POPULAR BOOK CORP.
97E Park Place, New York, N. Y.

The first complete book in the English language. Gliding is a sport that can be practised by everyone. It is the easiest, quickest and cheapest means of learning to fly. This book enables you to build and fly your own glider with little work and small expense. Written by expert gliders.

READ 'EM AND LAUGH — The pet story of each of a hundred world famous celebrities, personally interviewed by the author. each person is introduced by a comic introduction followed by an humorous caricature by the author.

Amateur aviation constructors and aviation students — comprehensive chapters on construction of a monoplane and biplane with detailed practical hints on motors, instruments, gliders and other parts are found in this invaluable book. Replete with over 200 photographs, illustrations and working diagrams — also complete description and photographs of latest types of planes.

12 BOOKS for $4.00 PREPAID TO YOU!

POPULAR BOOK CORPORATION,
97E Park Place, New York, N. Y.

2 SPECIAL OFFERS

Gentlemen:
( ) I enclose $4.00 (Foreign countries, $5.00) for which send my subscription for twelve monthly POPULAR BOOKS, to be sent to me, one every month, as published. You will send these books to me postpaid and, if I am not entirely satisfied with them, you will stop the subscription at any time and refund my money pro rata.
( ) I enclose $2.31 for which send to me, postpaid, the seven POPULAR BOOKS described on this page. (Single books will be sailed at 33c a copy; your choice of any book.)

Name .....

Address .....City and State.....

THE READER SPEAKS

(*Continued from page 1139*)

Time and Space

Editor, Science Wonder Stories:

I have just finished reading the March issue of "our" magazine. "The Rescue from Jupiter" was wonderful.

Concerning time and time-traveling I have the following to say: Sometime ago you said that space was extant before matter. I think so too, but will go you one better. I think Time existed before Space. From its very nature we see that it needed no preexisting Creator to fashion it. Requisite to the existences of all matter, entities, and conceptions, time stands as the first order of things and is "Supreme." Nevertheless, the mind of man is so limited in its capabilities, that I doubt whether the real truth will ever be learned.

The nature of time-traveling is both metaphysical and mathematical. In its very contemplation established concepts must be discarded as impertinent and foreign to the question. I think it is possible to travel back in time, but am uncertain as to whether time-traveling into the future is attainable. In the first place time traveling cannot be done in our own plane of existence, i.e., it can be achieved only by transferring ourselves into another sphere or dimension. Then we can both see and participate in those events which happen at a given time in that dimension. This does away with the possibility of killing one's ancestors and preventing one's subsequent birth, for such persons would not exist in the plane in which we are traveling. It may also be that in time-traveling only our psychic selves, not subject to tangible influences, are free to travel, while our material bodies remain in their respective planes.

Edward Alpert,
1273 Dewey Ave.,

(Time and Space are merely relative terms—neither one existed before the other—neither has a beginning nor an end.—*Editor.*)

Science and Religion

Editor, Science Wonder Stories:

I wish to thank you for the editor's note in the March SCIENCE WONDER STORIES, which commented on the Unitarian Church, and the co-ordination of Science and Religion by Rev. Dilworth Lupton.

I am enclosing a recent clipping which more fully shows Mr. Lupton's views. It also shows Mr. Lupton to be somewhat of a scientist himself. I feel that the stand he takes in this matter is a right one, and I am sure he is doing the world a service.

Very sincerely yours,
Allan P. Stern,
3995 Lincoln Blvd.,
Cleveland Heights, Ohio.

(As we feel this is a matter of interest to many readers, we reprint the clipping referred to by Mr. Stern:

Darwin's ape-man never existed, believes Dr. Henry Fairfield Osborne, the noted American paleontologist.

At a recent meeting of the American Association for the Advancement of Science Dr. Osborne, the retiring president, declared that man did not pass through a stage of tree-life (as Darwin believed) but emerged on the high plateaus of Central Asia, a free running, bipedal being.

Dr. Osborne believes that this emergence from other animal stocks occurred some ten million years ago. This is quite different from Archbishop Ussher's conclusion based on the Ant chapter of Genesis. Archbishop Ussher was quite confident that man was created in 4004 B. C.

Of course, Dr. Osborne's conception in no way weakens the theory of evolution—a theory now accepted by all of the world's greatest scientists. In fact, these new ideas give strength to the famous theory and again bring it to public attention.

THEORY REVOLUTIONARY

The theory of evolution—whether Darwinian or according to these later interpretations—has brought about a revolution in religious thought.

If evolution is true the second chapter of Genesis, describing the direct creation of man from the dust of the ground, is a myth. If the Bible story of creation is correct then the story of man's evolution from some other animal stock is a false doctrine.

Fundamentalists, of course, give their utter allegiance to Genesis. But religious liberals of all schools, whether consciously or unconsciously, have

(*Continued on page 1141*)

THE READER SPEAKS

(Continued from page 1140)

accepted the following principle: When your religious beliefs conflict with a well grounded scientific conception, change your religious beliefs.

Compare the sermon subjects in Saturday's newspapers today with the sermons preached by orthodox ministers 50 years ago. The old-time preachers dwelt long and ardently on the blue of heaven and the agonies of hell; to them these were definite localities. Modern astronomy has destroyed man's belief in such heaven and hell. There is no assignable place for them in our present cosmology.

Even as astronomy has demolished man's belief in heaven and hell, so the theory of evolution is destroying the old dogma of the "Fall of Man."

NO GOLDEN AGE

Science gives no evidence of any golden age, any garden of Eden. Man in the light of science never had an exalted place from which to fall. The story of man is rather one of rise from very primitive and crude stages of animal life.

Do such revolutions in religious thought destroy religion? Not at all. Religion is as natural to man as is love of beauty or love of his kind. Religion is primarily man's attitude toward mystery.

Science has made the world not less mysterious but more so. The ancient story of man created from the dust of the ground by an anthropormorphic God had little mystery in it. It was very simple. Michelangelo could easily picture it with his enchanted brush.

Consider on the other hand the picture science presents, molten masses being drawn from the sun by some passing star and turned into revolving planets; the cooling of one of these planets, the earth; the strange appearance of single-celled life, the emergence of complex organisms; the coming of mammals and man. Then his slow, tragic, unseen yet majestic rise to higher and higher esthetical, intellectual, moral and spiritual levels.

No mystery? Why, it is all saturated with mystery. We know and shall know but a fragment concerning its meaning.

Men more than ever before can stand in the presence of this mystery in reverence and exaltation and whisper, "God!"

The above extract appeared in a recent issue of the *Cleveland Plain Dealer*, and we think that it clearly sets forth Lupton's views.—*Editor.*)

On Dimensions and Life Spans

Editor, Science Wonder Stories:

I have read a number of your magazines and think they are wonderful. Your scientific explanations are very clear and reasonable, but there are a few which I can't understand. I will list them below:

1st: In your story, "The Metal World," I don't see how it would be possible to hold heat which destroys everything else, in a metal container.

2nd I don't understand your explanation of the Fitzgerald Contraction. It seems to me that, although the faster a body goes the smaller it gets, it would shorten its life span instead of lengthening it.

3rd: In your "Red Dimension" I can't see how a weapon of a creature in one dimension can harm a person in another dimension. Although the men in the story could see and hear in the sixth dimension, the ray-gun of the creature that they saw couldn't possibly harm them for they were in the third dimension themselves.

"The Conquerors" was fine; you should have more of that kind. I think you should have more of that type, also more interplanetary tales.

Sincerely yours,
Bill Tharp,
Red Lodge, Mont.

(Answering Mr. Tharp's question we might say this:

1: Heat can be in the form of energy which if released to the air in a certain form is transformed into heat. Naturally if heat is only a form of energy it cannot be bottled or boxed. It might be possible to have a gas which in the presence of oxygen [when released to the air] produced a devastating heat.

2: There was nothing said in the Fitzgerald contraction about lengthening a life span. Our correspondent must bear in mind that time is only relative and that when a time change occurs to a body moving at a high speed, the change is only *relative to the standards he used before.* According to his own standards, time remains unchanged.

3: The question of dimensional changes is quite complicated. We have as yet no experimental rules

(Continued on page 1142)

PATENTS

INVENTORS

Write for these FREE BOOKS!

At the left is a view of my drafting and specification offices where a large staff of experienced experts is in my constant employ. All drawings and specifications are prepared in my offices.

Protect Your Ideas

Take the First Step Today

If you have a useful, practical, novel idea for any new article or for an improvement on an old one, you should communicate with a competent Registered Patent Attorney AT ONCE. Every year thousands of applications for patents are filed in the U. S. Patent Office. Frequently two or more applications are made for the same or substantially the same idea (even though the inventors may live in different sections of the country and be entirely unknown to one another). In such a case, the burden of proof rests upon the last application filed. Delays of even a few days in filing the application sometimes mean the loss of a patent. So lose no time. Get in touch with me at once by mailing the coupon below.

Prompt, Careful, Efficient Service

This large, experienced organization devotes its entire time and attention to patent and trademark cases. Our offices are directly across the street from the U. S. Patent Office. We understand the technicalities of patent law. We know the rules and requirements of the Patent Office. We can proceed in the quickest, safest and best ways in preparing an application for a patent covering your idea. Our success has been built on the strength of careful, efficient, satisfactory service to inventors and trademark owners located in every state in the Union.

Strict Secrecy Preserved—
Write Me in Confidence

All communications, sketches, drawings, etc., are held in strictest confidence in strong, steel, fireproof files, which are accessible only to authorized members of my staff. Feel free to write me fully and frankly. It is probable that I can help you. Highest references. But FIRST—clip the coupon and get my free book. Do THAT right now.

No Charges for Information on How to Proceed

The booklet shown here contains valuable information relating to patent procedure that every inventor should have. And with it I will also send you my "Record of Invention" form, on which you can sketch your idea and establish its date before a witness. Such evidence may later prove valuable to you. Simply mail the coupon and I will send you the booklet and the "Record of Invention" form, together with detailed information on how to proceed and the costs involved. Do this NOW. No need to lose a minute's time. The coupon will bring you complete information entirely without charge or obligation.

[redacted]
Registered Patent Attorney

Member of Bar of Supreme Court of the United States; Court of Appeals, District of Columbia; Supreme Court, District of Columbia; United States Court of Claims.
Practice confined exclusively to Patents, Trademarks, and Copyrights

Mail this Coupon NOW

CLARENCE A. O'BRIEN
Registered Patent Attorney

[redacted] Security Savings and Comm'l Bank Bldg., Washington, D. C.

— or —

Suite 1106, Woolworth Bldg., New York City

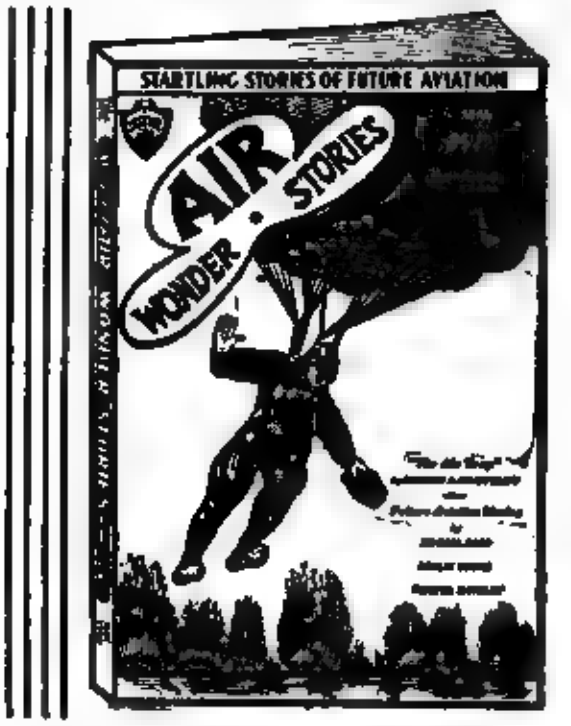
Please send me your free book, "How to Obtain a Patent," and your "Record of Invention" form without any cost or obligation on my part.

Name .....

Address .....

.....

(Important: Print or Write name clearly and address nearest office)



The Air Trap

By *Edward E. Chappelow*

Startling Thrilling!

An exciting tale of dauntless aviators risking their lives flying over perilous uncharted lands.

25c *The Copy* *On All Newsstands*

THE AIR TRAP, by Edward E. Chappelow. The airplane has done one notable thing if no other—it has opened up to man vast areas of untraveled, unknown lands. And those aviators who have at the risk of their lives, charted the air lanes over these vast deserts and jungles are the true pioneers of the century. Many of them have met with experiences stranger than anything we can suspect and few ever return to tell us about them. But whatever any aviator might have seen or met, certainly nothing could have been stranger than the "air trap" that Mr. Chappelow writes of—the trap from which few escape.

WOMEN WITH WINGS, by Leslie Stone. There is no doubt that all of us, as we watch the birds on their flights through the sky, have wished that we were winged and could leave the surface of the earth when and as we wished. What if that could happen and we became a race of winged beings? What a different life we might lead! And then suppose there were the complications of an invasion of the earth by beings from another planet? That might make a most thrilling story, you would say. And it does.

THE SKY RULER, by Ed Earl Repp. The present story combines excellent imagination and stirring adventure, with an ending so surprising, that no one will suspect it until he has finished the story. Who is the mysterious Sky Ruler, you will ask? Who is the man with strange powers who can hold a world at bay? The secret mystifies the world and the answer is not known until the story is finished.

THE ESCAPE FROM THE ARCTIC, by Walter Kateley. Suppose you were ice-bound in the great Arctic wastes, and certain death faced you. Perhaps, in your moments of madness, a great idea might come to you that would mean your salvation. In this astounding air-story Mr. Kateley shows indeed how "necessity is the mother of invention."

AND OTHER STORIES

OTHER INTERESTING FEATURES

AVIATION NEWS OF THE MONTH

AVIATION FORUM

THE READER AIRS HIS VIEWS—Letters From Our Readers

SPECIAL OFFER!

Big Saving—the regular price of AIR WONDER STORIES is $2.50 per year at subscription rate. Take advantage of this offer NOW by entering your subscription for eight months at ONE DOLLAR—just twelve and a half cents a copy or exactly one-half the yearly rate. Mail Coupon TODAY.

AIR WONDER STORIES, SW-3
98 Park Place, New York, N. Y.

I wish to take advantage of your special offer. Enclosed find ONE DOLLAR for which enter my subscription to AIR WONDER STORIES for the next eight months.

Name .....

Address .....

City..... State.....
(Canada and foreign $1.25)

The Next **8** *Months for* **$1.00**

A GENUINE 240 POWER MICROSCOPE! Sent for Only $1.00

An educational and entertaining instrument that enables all to see and know life invisible to the naked eye. Thrills and fun galore! See tiny bugs grow to proportions of great elephants. See plant and mineral life reveal amazing wonders in form and color. Made just like microscopes used by physicians, scientists, etc. Now only $3.98. Could easily sell for $10 and $20 more. Adjustable lens of 240 power. Send only $1.00. Pay balance ($2.98 plus postage) when postman delivers. If not satisfactory, return within 5 days and your money will be refunded.

IDEAL FOR STUDENTS!

A wonderful help in studying science, botany etc. Never before has such a wonderful instrument been offered at such an amazingly low price of $3.98. Dealers and Teachers Write for Our Proposition!

R. B. SPECIALTY COMPANY
Dept. E-243, 220 E. 3rd St., Cincinnati, O.

PATENTS TRADE-MARKS

DO NOT LOSE YOUR RIGHTS TO PATENT PROTECTION

Before disclosing your invention to anyone send for blank form "EVIDENCE OF CONCEPTION" to be signed and witnessed.

LANCASTER, ALLWINE & ROMMEL
(Registered Patent Attorneys)
475 Ouray Bldg., Washington, D. C.
Originators of forms "Evidence of Conception"

THE READER SPEAKS

(*Continued from page* 1141)

to go by. The editors are in fact perfectly open minded on the question as to what would happen to a person changing his dimensional form. We wish the comment and opinion of our readers.—*Editor.*)

Does the Reader Speak?

Editor, Science Wonder Stories:

My parents try to convince me that your own editorial staff writes that excellent department called The Reader Speaks. I hope you print this letter, then they'll think otherwise.

In the March issue, I enjoyed immensely Harl Vincent's "Before the Asteroids," even though the love making in the story was painfully amateur. The "Color of Space" by Charles R. Tanner is a great story. All the Prize Contest Stories were a bit too short however. The science in "Professor Duel's Ray" is put over in such a convincing manner that it sounds extremely plausible. "A Rescue from Jupiter" is pretty good but there is hardly any science in it.

With the increase in size of the magazine (which I didn't mind) you ought to get a long serial or two by one of your good old authors, such as A. Merrit.

I'm sure all the readers would like a picture of yourself and Paul on the editorial page. I don't have to elaborate on YOUR merits, but I will say that Paul is one of the best artists I've ever seen.

Would the Brewster telescope in the "Moon Conquerors" be a practical idea? If not, would you please tell me why.

Before I run out of ink, I would like to say that David H. Keller (long live his name) is the best author you have. I think his best story was the "Feminine Metamorphosis."

Aaron Podolnick,
2186 Cruger Ave.,
New York, N. Y.

(It is a popular impression that the correspondence columns of all magazines, large or small, are prepared by the editorial staff. Why this impression should prevail we do not know; possibly it is because the letters reproduced are so interesting that they appear to be written by experts. The fact is that anyone who writes a plain and sincere letter writes an interesting letter, and literary talent is not confined to editors or professional writers. After all, why should the editor of a magazine bother to write the letters in THE READER SPEAKS department when he has such an interesting variety of REAL letters to chose from?

The Prize Contest stories were short, certainly, but then the contest was limited to stories of 1500 words. It is much more difficult to write a really short story than a long one. The Prize Contest editors were astounded at the number of excellent stories received, and at the ability of amateur writers to comply with the difficult conditions imposed. Only after several re-readings, by a wide variety of judges, were the prize-winning submissions [illegible]

The science of building telescopes has developed to a point where a telescope such as is described in the "Moon Conquerors" is within the bounds of possibility. Difficulties have still to be overcome before a Brewster Telescope becomes a fact, but as you know, what is fiction today is actuality tomorrow.

If our readers think that David H. Keller is our best author, we would like to have their opinion on who is the next best.—*Editor.*)

In Defense of Authors

Editor, Science Wonder Stories:

It angers one to glance through the columns devoted to the reader's effusions. Many are ready to take exception to the slightest mistake of an author. They revel in their brilliancy of detection, and want to emblazon their adroitness before all the world. For the author's betterment, I believe that a deviation from the path of roses IS helpful. But more often, people will harp upon one fallacy—continually, until the poor writer is hursed amid protests. If we sifted through all the complaints I think we'd discover that such is the case. Most of the hubbub hinges upon one controversial point. If no commendation is forthcoming, it is better to remain quiet than to beleague the editor with sarcasm and deprecations.

Science fiction is a new endeavour. Until the advent of Mr. Gernsback, it was strongly individualized, resting in such luminaries as Wells, Verne, Poe, etc. But Mr. Gernsback knew that imagination was inherent in everyone; that suitable ex-

(*Continued on page* 1143)

THE READER SPEAKS

(Continued from page 1142)

pression could be molded by just a little coaxing or incentive. So from all America he culled the outposts of science fiction writers. Repp, Keller, Vincent, Breuer, all owe their prominence to him. SCIENCE WONDER STORIES is an established project.

We purchase this magazine for our own enjoyment. Often, as in my case, there are those who couple this happiness with an absorption of science. A large percentage of us await impatiently its appearance, so eager are we to devour its contents.

To enhance this pleasure, we ought to keep in mind that science fiction is yet a scrubby infant. Tolerate its indiscretions as you would a child's. A gentle remonstrance now and then, but—save the ugly punishment until it comes of age.

Yours respectfully,
Hegory Joywater,
952-47th St.,
B'klyn, N. Y.

(Mr. Joywater states a case for the author very cleverly. It is true that Science Fiction is in its infancy, and that the publishers of this, and our sister magazines, spend hundreds, perhaps thousands of dollars in advertising for Science Fiction writers, advising them, often teaching them the finer points and sometimes the fundamentals of their craft.

But to a great extent we are aided by the readers of these magazines, amongst whom are many well known scientists, and all of whom are above the average in mentality and intelligence. Criticisms of stories, and especially scientific criticisms, are eagerly sought after, as those who read these columns realize. Our critical readers are the watchdogs of scientific accuracy and it is partly to them that Mr. Joywater and other science fans owe their enjoyment of our stories.

Yet it is true that too harsh a criticism may prove destructive instead of constructive. Therefore we particularly welcome those criticisms which are essentially constructive, and show, not merely how WRONG the author is, but how his mistakes can be rectified.—*Editor.*)

Smells a Rat

Editor, Science Wonder Stories:

I am beginning to smell a rat. Although the stories in "our mag." are supposed to be fiction stories based on science, yet I am very tolerant and do not insist on seeing and understanding the scientific basis. I begin to feel uneasy, however, when in one issue, (the April issue) you put that blazing "lead" on your cover:—"MYSTERY—ADVENTURE—ROMANCE" and print the word "Science" so weakly.

I would advise you to cut out that extra title and instruct your pressmen to print the word "SCIENCE" as strong as the word "STORIES."

I am not saying anything against the picture; it was splendid.

I hope you can find room for this in the reader's columns. It is not a long letter, and I would like to know whether other readers of the magazine agree with my views.

Leo J. Steinlein,
1215 Elder Avenue,
New York, N. Y.

(We understand that much curiosity has been provoked by the title changes referred to. We will be as interested as Mr. Steinlein, in receiving further opinions on the subject. We want him to understand emphatically that there is no change contemplated in our stories. The editorial view point is set forth in reply to a letter from Mr. Glassberg, who also states his re-action with some emphasis. If those who have noticed the differences in our April cover will turn to Mr. Glassberg's letter and peruse our reply, we think that they will agree that we are acting in the best interests of science.—*Editor.*)

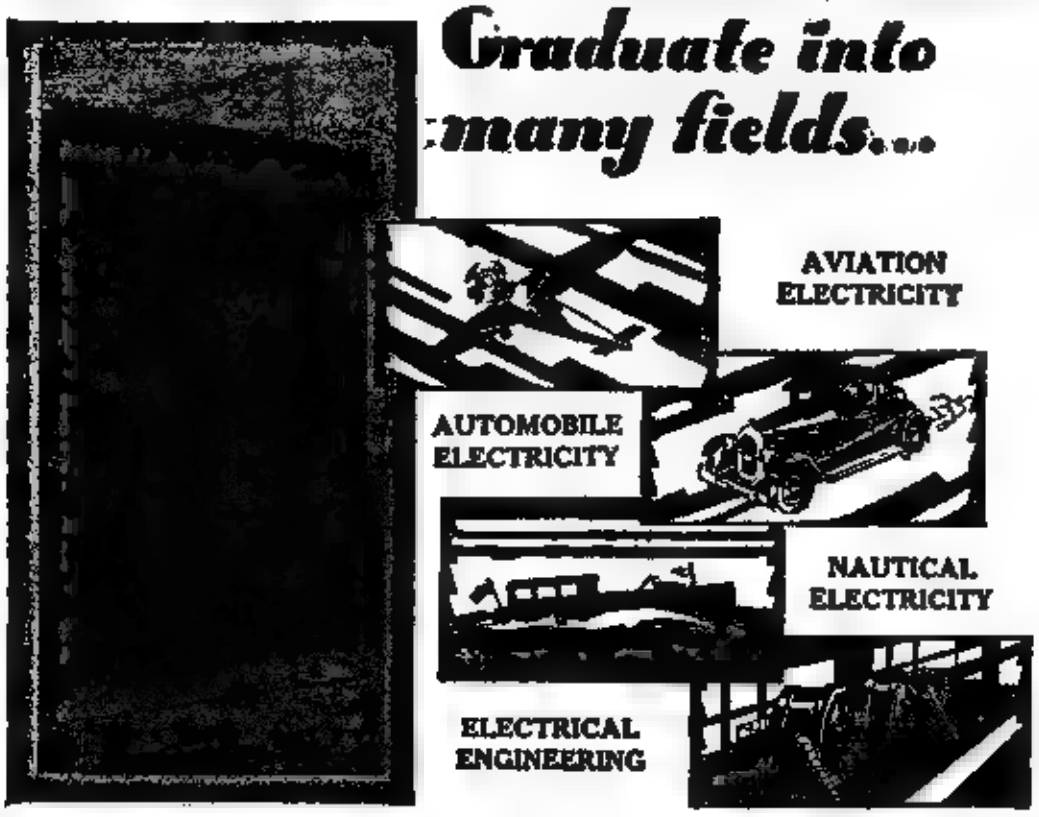
A Monument Already

Editor, Science Wonder Stories:

I have just finished reading the last issue of SCIENCE WONDER STORIES and I can truthfully state that it is much better than any other science fiction magazine. Your magazine is a wonderful boom to the scientifically inclined youth of the United States and the rest of the world, too. It is high time that its inhabitants realized the importance of science and invention in their homes and made it easier for coming scientists, instead of harder as they were wont to in "the good ol' days." If the

(Continued on page 1144)

N.Y. ELECTRICAL SCHOOL Men Graduate into many fields...



A full knowledge of electricity, as taught in the New York Electrical School, makes you independent, gives you your choice of either a BIG PAY job with one of the world-famous electrical companies, or a business of your own. ELECTRICITY is also a stepping-stone to Aviation, Automobile Engineering and other highly paid professions.

Here at the New York Electrical School you learn, not by correspondence, but by ACTUAL PRACTICE on full-size standard equipment. NO BOOKS used. Individual instruction—you can start any day. This School owns and occupies two seven-story buildings in New York—the city of most opportunities. It is widely known as the country's oldest and foremost institution for trade training. That's why big companies eagerly demand our graduates.

THE NEW YORK ELECTRICAL SCHOOL
21 West 17th Street, New York

FREE This Mr. Steeper booklet gives full information about the New York Electrical School system and picture of the equipment available for your personal use. Send for it TODAY. It's free.

MAIL TODAY

The New York Electrical School
21 West 17th Street, New York
Please send me FREE your 64-page booklet. It is understood that this request puts me under no obligation.

Name .....

Address .....

Editor, SLOGAN CONTEST,
SCIENCE WONDER STORIES,
96-98 Park Place, New York City.

SEE PAGE 587
5-30

Gentlemen:

I have written below my entry in your $100.00 Prize Slogan Contest.

.....

Name .....

Occupation..... *Age*.....

Street Address .....

City..... *State*.....

Chemistry

is the BACKBONE of Every Industry

T. O'Conor Sloane A.M., A.M., LL.D., Ph.D.

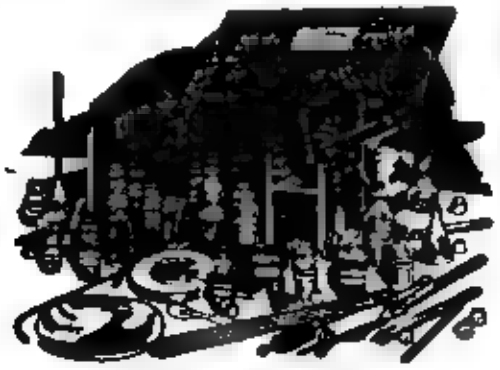
The keystone of every manufacturing business today is its chemical laboratory. It is the chemists who hold the secrets of production—the chemists who are consulted whenever processes are to be improved or mistakes corrected. All the little economies of buying or manufacturing which serve to multiply a company's dividends originate with the chemist.

You Can Do This Important Work Yourself With Our Training

WE WILL TEACH YOU CHEMISTRY in a practical way. Dr. Sloane, noted chemical technologist, has prepared a course so simple that no preliminary education is needed to learn it. You will receive Dr. Sloane's personal tutoring throughout your entire period of training. Every lesson is filled with interesting and practical experiments for you to work out at home with the equipment which we supply. By learning at home you do not have to sacrifice your regular occupation while you are preparing for this interesting profession which will increase your earning power many times.

Scarcity of Chemists

Opportunities for chemists at this time are becoming greater all the time. Yet Chemistry offers you the one profession which is still uncrowded. This is because chemical development in the United States is extremely new, and the country has not yet fully awakened to the need for men who understand Practical Chemistry.



EXPERIMENTAL EQUIPMENT GIVEN TO EVERY STUDENT

No extra charge is made for the comprehensive set of apparatus and chemicals which we send you, and it becomes your permanent property.

Tuition Price Reduced

The fee charged for the entire course of training, including the Experimental Outfit, has always been very moderate. Lately it has been reduced substantially, owing to the increase in our student body. In addition small monthly payments are acceptable, and a very liberal credit policy enables you to enroll no matter how little your present income may be.

CHEMICAL INSTITUTE OF NEW YORK, INC.
Home Extension Division S
99-19-6 E. 30th Street, New York, N. Y.

Please send me at once, without any obligation on my part, your Free Book, "Opportunities for Chemists," and full particulars about the Experimental Equipment given to every student. Also please tell me about your plan of payment and the reduction in the tuition price.

NAME .....

ADDRESS .....

CITY ..... STATE .....
SYO 8

THE READER SPEAKS

(Continued from page 1143)

dead and gone scientists had not been held back and persecuted by so-called "God-fearing," but really devil-fearing and superstitious-ridden people, the earth would be much further along the scale of civilization than it is now. The Creator is one to be respected, not feared, for it is well known that fear breeds secret hate. I know I shall live to see the day when SCIENCE WONDER STORIES will be the most widely read magazine in the world, and I wouldn't be the least bit surprised if a monument is erected by a grateful public to Hugo Gernsback, the *real* father of science fiction, for Poe and Verne were only pioneers in that line. I wish I could live until the time when nothing is run privately and everything is run by the State. I know it shall not happen in my time, but happen it surely will. An era of sane scientific living, when the people of this earth shall work for the State and receive for it, recreation, necessities and luxuries of life. An era where there will be no poverty and every man will really be equal. An era when the whole earth will be governed by one man and every man will be brother to all other men. A Utopia on earth, a tremendous dream but not an impossible one.

Leaving the dim future, we will now descend to the present. I wish to congratulate you on your masterpiece "Ralph 124C 41+," which I read recently. A story has to be read twice to be really appreciated, and I liked it all the better for its second reading. This story, I believe should go down in the annals of science fiction as one of the best published. One has but to read the first chapter to realize the truth of my statement. It is on a level with the best of Poe's, Verne's and Wells', works, and in some parts much better than the works of these three pioneers. The science in it is excellent and several of the inventions spoken of have already, or nearly already, been put in use.

It may interest the readers of "Ralph 124C 41+" to know that Mr. Gernsback's idea of using "Arcturus Rays" to kill germs on and in the human body may soon be used, for Prof. George Speitt of the University of Cincinnati in Ohio has proved that by application of his theory, germs in food and bacteria in the body could be destroyed or disintegrated by light rays.

Before closing I wish to put in a few words concerning the "Science Correspondence Club". Every young man or girl interested in science should join this rapidly growing club. I am sure that some day its membership will exceed that of any other club in the world.

Having exhausted every topic I wished to speak of, I will now pay my respects to Hugo Gernsback, father of science fiction, and wish that his modesty will not prevent the printing of these few truths regarding himself and his work in the readers' columns.

Wishing the best of luck to SCIENCE WONDER STORIES and the "Science Correspondence Club,"

You might have known it. A complimentary letter without one brick bat probably has set you gasping. This isn't the "perfect complimentary letter," for it contains one little brick bat, so small you won't notice it. The paper could be much better, for it is rather hard to handle right now.

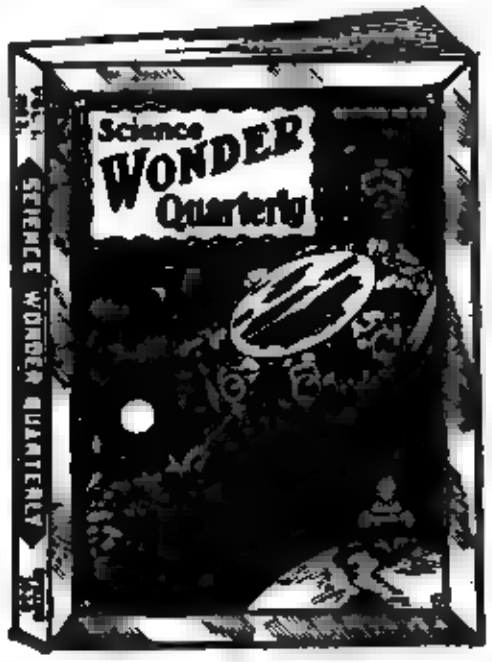
Stanley Osowski,
Central Falls, R. I.

(As we understand that monuments are only to the dead, we hope that Mr. Osowski does not mean our life's work is over. In fact, since the inception of SCIENCE and AIR WONDER STORIES we have begun to feel that our editorial life has just really begun. We never felt younger. Therefore, we must decline the monument for a few years at least. Quite seriously we can echo what Mr. Osowski says about the "Science Correspondence Club." We are heartily in accord with its purposes and wish to render it every aid within our power.—*Editor.*)

(Continued on page 1145)

NOW ON ALL NEWSSTANDS

Look for the GOLD Cover!



144 Pages 4-Color Cover

THE STONE FROM THE MOON
By Otto Willi Gail

In this sequel to the "Shot Into Infinity," Mr. Gail gives us a full-length novel of the most amazing romance, adventure and interplanetary travel. The mad dashes from planet to planet to solve an age-old secret of the world will thrill the most cold-blooded reader.

OTHER CONTENTS OF THIS ISSUE

THE APE CYCLE
By Claire Winger Harris

WITHIN THE PLANET
By Wesley Arnold

VIA THE HEWITT RAY
By M. F. Rupert

And several other stories

50¢ *The Copy*

Special Offer!

The regular price of the QUARTERLY is $1.75 per year, single copy 50¢. To new subscribers a special price of $1.25 is now available.

—MAIL COUPON—

SCIENCE WONDER QUARTERLY SW-6
[illegible]
New York, N. Y.

Enclosed find $1.25 for which please send me the next four issues of the QUARTERLY.

Name .....

Address .....

City ..... State .....
(*Canada and foreign* $1.50)

THE READER SPEAKS

(Continued from page 1144)

A Scientific Apprenticeship

Editor, Science Wonder Stories:

I am one of the regular readers of AMAZING and SCIENCE WONDER STORIES, and can only say that to read an edition of each every month is an event to look forward to with anticipation.

However, not being a student of science, I cannot appreciate to the fullest extent the experiments conducted with gravity, and so forth; but having been interested in science since I was knee-high to a grasshopper, and never having had the opportunity to delve into it—carrying out my father's wishes to be a musician, as he was—I now take the liberty of picking out my vocation at this late date.

I am a successful musician, and make a living from it professionally; but it is not what I like to do for the remainder of my life.

I therefore take the liberty of writing you to ask whether it is possible for me to enter upon an apprenticeship for science, if there is such a thing. I would like some information telling me how I could enter upon this work, and where, in the neighborhood in which I play.

I understand that I must delve into physics and other sciences; but is there not a school, or even a shop where I can learn by actual experience?

G. Warren Salisbury,
7 Gables Inn,
Milford, Conn.

(You wish to enter upon a very long and very severe period of toil which will bring you little money—if any. Science is not a profession, it is a branch of knowledge, and before one can even think of making anything out of it, he will have to devote many years to close application to it. We suggest that you read the scientific books in your local library. Thompson's four-volume *Outline of Science* will give you a broad general view which will open up to you some of the problems that you may expect to face. One volume that will give valuable information—after you have digested the work mentioned—is *Modern Scientific Knowledge*," edited by F. A. Cleveland. (Ronald Press, N. Y.) In addition, you should try to find out something about mathematics, physics, and chemistry. Dr. Edwin E. Slosson's book on chemistry will help you, as will *Chemistry in Daily Life*, by Samuel Glasstone (E. P. Dutton & Co.)—*Editor.*)

Would Prevent Calamities

Editor, Science Wonder Stories:

In your December issue of SCIENCE WONDER STORIES you invite discussion as to the possibility of participating in events occurring in the past were one to travel through the fourth dimension to another date.

I contend that it would be impossible to participate in view of the fact that if it were possible, our history would be entirely different from what it is. It stands to reason that if in the future some one does discover the means of traveling through time, he has already traveled to or through our present time, and were it possible to have had a hand in the affairs of the times, such catastrophes as the World War would have been averted.

We have all heard about the ripples made when throwing a stone into the water continuing indefinitely. It seems to me that the solution of looking into the past might be that past events send out electrical waves diminishing in the same way ripples do, but still continuing indefinitely to be picked up by some super sensitive instrument. If, as some contend, life and all things pertaining to it are predestined, it is just as possible to pick up the waves of this predestination and to forecast coming events as it would be to recount things of the past.

R. Stanley Allison,
131 N. Ridgeland Ave.,
Oak Park, Ill.

(Time-traveling has little to do with prognostication. That lies in the realm of the spiritual and occult, with which we are not concerned. Scientifically, we believe that time travel is a possibility. Actual physical participation in past events we do not consider as yet; the subject is too undeveloped. But there are so many interesting points to be covered, that we shall be glad to throw open our columns for further discussion. —*Editor*).

ELECTRICITY OFFERS BIG PAY
NOW YOU CAN LEARN AT HOME
HUNDREDS of COOKE TRAINED MEN ARE MAKING $60 to $100 A WEEK
LEARN BY DOING
SECRETS of SUCCESS in ELECTRICITY
The Cooke Trained Man is the Big Pay Man

Why don't you get into Electricity, too? It's today's great Opportunity for you and every other man who is sick and tired of struggling along on small pay. Hundreds of "Cooke Trained Men" who were no smarter than you when they started now make $3,000 to $5,000 a year—and some make even more.

LEARN AT HOME IN SPARE TIME

Learn with the famous L. L. COOKE "Work Sheet and Job Ticket" Method. It's simple, it's thorough, it's practical. It's just like actual shop experience, yet it's all done right in your own home with the Big Complete Outfit of Tools and Apparatus given to you without extra cost. And it's done in your spare time, without quitting your present job or losing a single hour's pay.

PREVIOUS EXPERIENCE NOT NEEDED!

You don't need previous experience—you don't need higher education to learn Electricity the L. L. COOKE Way. If you can read and write, that's enough. This great Training is amazingly clear and simple. There's nothing like it anywhere. It's the Training with hundreds of successful graduates; it's the Training that has put many men on Easy Street; it's the Training for you.

GET STARTED—MAIL COUPON

"Cooke Trained Men" are the "Big Pay Men" everywhere. $60 to $100 a week is what many of them are making. That's the kind of a job for you. Get started under the famous L. L. COOKE Money Back Agreement. Act today to increase your pay. Send coupon for Big FREE Book, "Secrets of Success in Electricity." Mail coupon now.

L. L. COOKE SCHOOL OF ELECTRICITY
Dept. 345 2150 Lawrence Ave., Chicago, Ill.

FREE BOOK COUPON!

L. L. Cooke School of Electricity,
Dept. 345 2150 Lawrence Ave., Chicago, Ill.
Send me entirely free and fully prepaid, your book "Secrets of Success in Electricity," with particulars about your Home Study Course in Electricity.
Name .....
Address .....
City ..... State .....
Residents of Canada may send coupon to R. A. Farrar, Special Rep., 7 Medbury Lane, East, Windsor, Ont., Canada.

ARE YOU A GOOD DETECTIVE?

Can you follow the clues presented in a detective story? Can you pick the guilty one when evidence is undecisive. If you can, now try to do it in the FIRST NATIONAL DETECTIVE MONTHLY WITH A SCIENTIFIC BACKGROUND.

Turn to page 1167 and read the interesting announcement.

The Universe in Danger

From within the giant star Canopus burned a ceaseless stream of gravity-destroying vibrations, which disrupted the galaxy and sent our sun and all the other stars wandering aimlessly off into space. How this terrible menace was met makes a thrilling narrative filled with exciting adventure and unthinkable dangers. This startling weird scientific novelette, THE SUN PEOPLE, by Edmond Hamilton, will be printed complete in the May issue of

Weird Tales
The Unique Magazine

On sale at leading newsstands April 1st, or mail 25c to the publishers at 840 N. Michigan Ave., Chicago, Ill.

AUTO RADIO

Designed specially for operation in automobiles, motor boats and airplanes. Compact. Tremendous volume. Wonderful tone. Single dial control. Will fit any car. Easily installed by anyone. Fully guaranteed. Be among the first to have an auto radio. Price, including tubes **$39.50**

CHAS. HOODWIN CO.
4240 Lincoln Ave. Dept. E-40 Chicago, Ill.

Now Read in Perfect Comfort

NOTHING LIKE IT BEFORE! Now you can lay in bed and read in perfect comfort. No tiresome propping—no more backache—no more stiff necks! Just lie easy to read as when holding the book in front of you. This clever little book rest makes night study a real pleasure. You can now read for hours without tiring. Send only $1.00 in currency, stamps, check, or money order. If not satisfied return within 5 days and your money will be promptly refunded.

ONLY **$1.00** COMPLETE

E. B. SPECIALTY CO.
Dept. E-227 220 E. 42 St., Cincinnati, O.

See How Easy You Can Get... A Business of Your Own This New Way!

SEND your name and address for an amazing FREE book which gives facts that will surprise you about Modern Photography. It tells of an amazingly easy way to start your own business quickly, with very little capital. It also shows how hundreds of other men and women are making real money in spare time taking pictures.

Many Earn $35 to $90 a Week in Spare Time

In this day of pictures, photographers are making more than ever before. But just ordinary photography is not enough. In this book you are told how such men as Hughes of Kentucky made $97 in two days, how Sager of Pennsylvania earned $700 during spare time in a few months. Our method is so simple and easily grasped that you can make money even while learning.

Look into the new opportunities in Photography—and see why newspapers, magazines and photogravure sections use thousands of photos a month and pay big prices for them. Business firms are constantly in the market for photos to be used in catalogs, bulletins and advertising. Portrait work pays big.

FREE Book Tells How

Just mail the coupon for this FREE book. It explains how our thorough Course in Modern Professional Photography enables you to quickly learn this fascinating, profitable work in your own home.

It will pay you to discover the opportunities that exist today in Modern Photography—how you can establish your own business, or make big spare time money or earn while learning. Scores of invaluable money making ideas—every branch of photography described! And the book is sent absolutely FREE! Just mail the coupon this minute for your copy.

AMERICAN SCHOOL OF PHOTOGRAPHY
3601 Michigan Ave.
Dept. 3601
Chicago, Ill.

AMERICAN SCHOOL OF PHOTOGRAPHY
3601 Michigan Ave., Dept. 3601, Chicago

Please send me free and without obligation my copy of your startling new book Opportunities in Modern Photography, and full information regarding your course.

Name .....

Address .....

City ..... State .....

SCIENCE NEWS OF THE MONTH

DISEASES YIELD TO ALCOHOLIC INJECTION

Injection of alcohol can cure sleeping sickness, said Dr. C. F. McClintic of the Detroit College of Medicine and Surgery, speaking before the State Medical Society of Wisconsin. The alcohol, ninety-five per cent pure, is injected beneath the sheath surrounding certain arteries, Dr. McClintic said; while care is to be taken that the infiltration extends completely around the artery, forming a collar. The tissue after injection has the appearance of being charred, but it is found to make no difference what quantity of alcohol is injected, as there are no apparent ill effects following. This same treatment may be used also in cases of epilepsy, gangrene, ulcers and Buerger's Disease, Dr. McClintic added.

SHINING FLYPAPER WORKS AT NIGHT

Luminous flypaper that will lure light-loving flies to a sticky doom may soon be in use, Lyman Chalkley, Jr., director of research of Fodlar and Ryan, New York, recently told the Illuminating Engineering Society. Phosphorescent pigments mixed with the sticky coating produce a light, when the flypaper is in the dark.

"Photo-luminescence is finding an increasing number of industrial applications," Mr. Chalkley explained: "Phosphorescent materials, which emit light for some time after the exciting light has ceased, are used on Highways, signboards and house numbers."

Fluorescent materials, which glow only when under the influence of activating light, are also finding use. When illuminated by ultra-violet light, itself invisible to the eyes, they produce visible light, and are used effectively on the stage and in window displays. By combining phosphorescent and fluorescent pigments in costumes or signs, striking effects can be obtained.

COLORED LIGHT SYMPHONIES PLAYED MECHANICALLY

Colored light can be made to sway, blend and sweep over displays, theaters, or building by a new control mechanism just perfected, J. L. Stair, Chicago electrical engineer, has announced. Like a piano player, the color combinations are controlled automatically by a perforated paper roll fed into the machine.

"The dimming of the circuits is accomplished without flicker, and changes in color may be made exactly in a predetermined order," Mr. Stair said: "The fact that control is based upon electro-pneumatics gives the opportunity for exact, quiet control, practically as subtle as that to be found in the pipe organ. As a perforated paper roll passes the openings in a tracker bar, the functions of turning circuits on and off, and the operation of the dimmers are automatically performed. The nature of the color combinations may be predetermined and transcribed to the paper roll. The machine has great flexibility, inasmuch as all circuits are in no way related. The operation of the dimmer is independent of the electrical circuits, enabling any combination to be pre-set. Further flexibility is obtained by various speed controls, and the use of manual operation by means of a console keyboard."

SCIENCE DOES NOT EXPLAIN RELIGION, DECLARES ASTRONOMER

Science has not yet found a means of plumbing the basis or meaning of religion, declared Professor Eddington, noted Cambridge University astronomer. Faith is a thing that defies physical analysis. The moment we leave the realm of physical things and enter the spiritual world, where personality rules, the scientist is stumped. Professor Eddington declares that he is in accordance with similarly expressed ideas of Alfred Einstein. He did say, however, that the spirit of seeking which animates the truly religious, such as the Quakers, could be identified with the gropings of the scientists for deeper meaning to the world about them.

(*Continued on page 1147*)

The Greatest Sin of all is usual IGNORANCE of the most important subject in the life of every man and woman—SEX.

Away With False Modesty!

Let us face the facts of sex fearlessly and frankly, honestly and scientifically. Let us tear the veil of shame and mystery from sex and build the future of the race on a new knowledge of all the facts of sex as they are laid bare in plain, daring but wholesome words, and frank pictures in the huge new library of Sex Knowledge.

"MODERN EUGENICS"

544 Pages of SECRETS

Everything a Married Woman Should Know—

How to hold a husband
How to have perfect children
How to preserve youth
Warding off other women
Keeping yourself attractive
Why husbands stray
Dreadful diseases due to ignorance
Diseases of women
Babies and birth control
Twilight sleep—easy childbirth
How babies are conceived
Diseases of children
Family health guide
Change of life—hygiene
Why children die young
Inherited traits and diseases
What will you tell your growing girl?
The mystery of twins
Hundreds of valuable recipes

Secrets for Men—

Mistakes of early marriages
Secrets of fascination
Joys of perfect mating
How to make women love you
Bringing up healthy children
Fevers and contagious diseases
Accidents and emergencies
Hygiene in the home
Limitations of offspring
The sexual embrace
Warning to young men
Secrets of greater delight
Dangerous diseases
Secrets of sex attraction
Hygienic precautions
Anatomy and physiology
The reproductive organs
What every woman wants
Education of the family for health and prevention

Girls—Don't Marry before you know all this—

The dangers of petting
How to be a vamp
How to manage the honeymoon
What inserting to allow a lover
Secrets of the wedding night
Beauty diets and baths
Do you know—
How to attract desirable men
How to manage men
How to know if he loves you
How to acquire body grace and beauty
How to intensify face, hands, hair, mouth and feet
How to acquire charm
How to dress attractively
Intimate personal hygiene
How to pick a husband

IMPORTANT!
This work will not be sold to minors. When ordering your book, state your age!

Grenpark Company
245 Greenwich St.
Dept. SG-5
New York, N. Y.

Please send me "Modern Eugenics" SEALED, in plain wrapper. I am sending you $2.98 in accordance with your special half price offer.

My age is .....

Name .....

Address .....

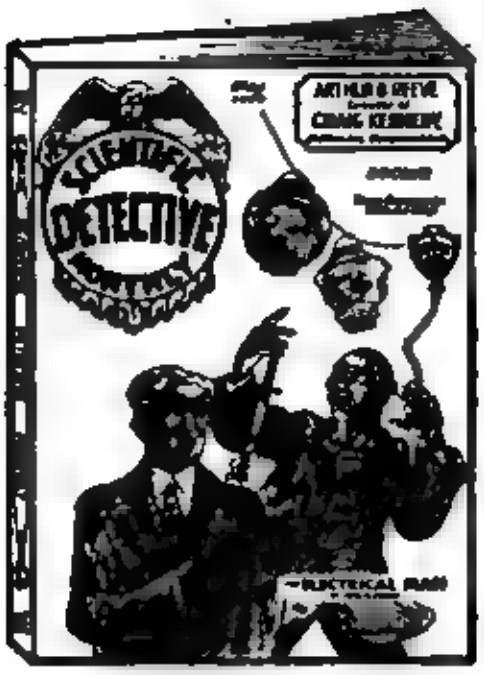
City and State .....

The story you have been waiting for —

THE ELECTRICAL MAN

By *Neil R. Jones*

A tale of scientific adventure and crimino-detective action — fast-moving — drama — suspense — and swift adventure. A real "action" story with a fighting motive. Read it in the May issue of SCIENTIFIC DETECTIVE MONTHLY.



25c The Copy On All Newsstands

OTHER CONTENTS OF THIS ISSUE

MURDER IN THE CLINIC
By *Edmond Hamilton*

THE AZURE RING
By *Arthur B. Reeve*

THE ELEVENTH HOUR
By *Edwin Palmer* and *Wm. B. MacHarg*

SPECIAL OFFER!

***The Next* 8 *Months for* $1.00**

MAIL COUPON — TODAY!

SCIENTIFIC DETECTIVE MONTHLY,
98 Park Place, New York, N. Y. SW-5

Enclosed find ONE DOLLAR for which enter my subscription to SCIENTIFIC DETECTIVE MONTHLY for the next eight months. (Canada and foreign $1.25.)

Name .....

Address .....

City..... State.. .....

SCIENCE NEWS OF THE MONTH

(*Continued from page* 1146)

LACK OF VITAMINS DOES NOT [illegible]

Dr. J. Mocsnyi of Budapest, speaking before the Thirteenth International Physiological Congress, disclosed as a result of experiments he has conducted, that the brain of an animal suffering from a lack of vitamins resists starvation more successfully than the rest of the body. Dr. Mocsnyi experimented with three groups of white rats, feeding one group on ordinary diet with neither excess nor lack of vitamins; a second group got a ration as near zero in vitamin content as it is possible to devise, and the third group received a considerable excess in vitamins. The brains were weighed at the end of the experiment, and no notable difference in weight was detected. From this he deducts that no notable increase in total brain size results from excess of vitamins, and that the brains of animals whose bodies were rendered subnormal by vitamin starvation develop to normal size.

WAR IS IMPOSSIBLE, CHEMISTS [illegible] TOLD

That the "dread possibilities" of modern chemistry in conjunction with aeronautics have made war impossible, was the statement made by Frank P. Garvan to the American Chemical Society in session at Minneapolis. Mr. Garvan said he was "convinced that, in case of a modern war between great powers, it would be foolish and useless for any battleship or cruiser to leave its dock or an army to take the field"; and that "the terrible powers of chemistry, as we know them, and its war messengers, the airplane, both on sea and on land, strengthen the effort to safeguard the peace of the world by treaties and by agreements."

ELECTRON A MATHEMATICAL QUANTITY, SAYS LANGMUIR

Dr. Irving Langmuir, president of the American Chemical Society, states that the atom is more firmly established than ever as a natural, unit particle of matter; but the electron as a constituent particle of the atom has lost its identity except as a mathematical quantity. The new wave-mechanics theory of atomic structure, he also says, deals with the contents of the atom as a wave phenomenon in six dimensions. The electrons may now be regarded either as particles or as waves. By means of the wave-mechanics theory, it is now possible to calculate the distance between atoms in a molecule from a spectroscopic examination of the light emitted by the substance when incandescent; and further calculation then gives the heat of dissociation, and heat coefficients under different conditions.

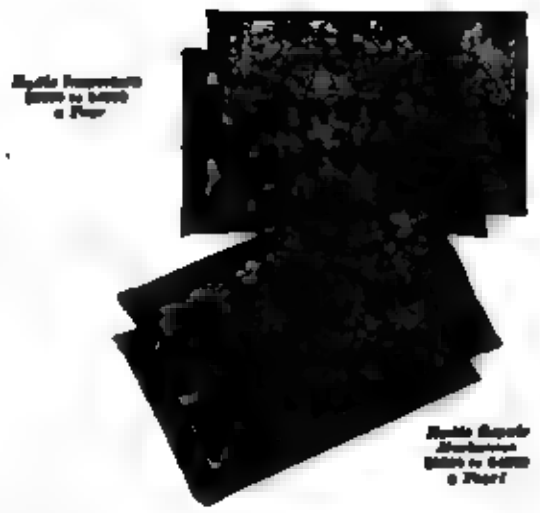
DISCOVERS NEW METHOD TO TELL [illegible]

A new method of telling time by means of the stars has been described by Professor F. B. Littell of the Naval Observatory at Washington. The usual method is to use a transit, and watch for a star to cross its centre. The time of crossing is a predetermined figure. The new device, the "photographic zenith tube," is a special form of telescope that points directly overhead. Halfway down is a dish of mercury, which is always exactly level, and as the light that enters the tube is reflected back to the top. A tiny photographic plate just below the lens receives the light, and a record is left of the star. By letting the star trail across the plate, in a special holder that gets a jerk every second from a magnet connected to the clock, a series of short dashes are obtained. By measuring their position, the time can be obtained more accurately than with a transit; because the mercury is always level, and so gives a point exactly overhead precisely on the meridian.

PROLONGING LIFE MAY CAUSE [illegible]

A real danger to the welfare of society may be found in the progress which medical science is making in eliminating disease and prolonging life. Dr. Burton D. Myers, president of the Association of Medical Colleges, declared the possible menace of medical progress lies in the resulting increase of population, which may

(*Continued on page* 1148)



SUCCESS IN RADIO

Depends upon Training

...You Get that training with RCA Institutes Inc.

REGARDLESS of who you are... how old you are... where you live or what you do... You, too, can make a success in radio because RCA Institutes trains you *for* success. This is the *only* school backed by the Radio Corporation of America... the foremost radio organization in the world today!

"A serious shortage of Trained Men Exists Right Now"

"Thousands of men are needed. Broadcasting stations, manufacturing plants, retail and wholesale dealers, as well as ships at sea and planes in the air are now waiting for men like you... men who have the will as well as the knowledge to make good. They know that the graduate of RCA Institutes has the knowledge and ability to hold a good position in radio.

Remarkable Outlay of Apparatus included with this famous Laboratory Training Course

You learn radio by actual experience with the famous RCA Institutes outlay of apparatus... A complete assortment of parts assembled for your help and instruction by RCA experts. See for yourself how easy it is to solve every radio problem such as repairing and servicing fine sets. Here is the training that you cannot duplicate elsewhere, at any price. Students learn by actual experience, under the direction of RCA, the world-wide organization that made Radio what it is today.

RCA Graduates Find It Easy to Fill Good Radio Jobs

For more than 20 years, there has been a radio job for practically every graduate who wished one. RCA Institutes students are actually *trained for success in radio*... That is the *only purpose of this organization* and that is why students make such rapid progress in Radio. Every student receives an agreement signed by the president of this school assuring absolute satisfaction upon completion of the course ... or money refunded.

RCA INSTITUTES INC.

Formerly Radio Institute of America

Sponsored by RCA

RCA INSTITUTES, Inc.
E. R. A.-5, 75 Varick Street, New York.

Gentlemen: Please send me your FREE 48-page book which illustrates the brilliant opportunities in Radio and describes your laboratory-method of instruction at home.

Name.....

Address.....

These Brilliant Masterpieces of Fiction Stagger the Imagination as no other Tales ever written . . .

Here are the most startling, the most *different* stories ever written for your amusement.

Here is the tale of the *Time Machine* that goes forward—into the future—or backward—into the past—as its inventor wills it. He travels into the future, to the year 8271, to find the world a flower garden, brooding in dread of a fearsome THING that comes upon the people in the dark.

Some of these stories have been unavailable for a long time. The publishers have sought them from original sources and now present them in this form *for the first time!* Due to the great demand for this expensively compiled *first edition* of the One Volume H. G. Wells, we have been able to secure only a limited supply from the publishers. We are compelled to set a time limit of fifteen days for this offer and our small supply is going fast. If you wish to be absolutely sure to obtain your copy and gain all the advantages this offer holds you *must act at once!*

The Short Stories of H. G. Wells are bound in semi-flexible seal grain maroon, 1015 **pages of the best India paper.** The type is [illegible]ly chosen for easy reading, based upon [illegible]ific facts for the elimination of eye strain. In appearance as well as contents this volume will take its place in any library, no matter how expensive, on any book-shelf, a credit to its owner's taste and the integrity of the publishers.

SPECIAL OFFER
(For a Limited Time Only)

PRICE $4.98
(Now Available in 1 Volume)

The Time Machine
The Empire of the Ants
A Vision of Judgment
The Land Ironclads
The Beautiful Suit
The Door in the Wall
The Pearl of Love
The Country of the Blind
The Stolen Bacillus
The Flowering of the Strange Orchid
In the Avu Observatory
The Triumph of the Taxidermist
A Deal in Ostriches
Through a Window
The Temptation of Harringay
The Flying Man
The Diamond Maker
Aepyornis Island
The Remarkable Case of Davidson's Eyes
The Lord of the Dynamos
The Hammerpond Park Burglary
The Moth
The Treasure in the Forest
The Platner Story
The Argonauts of the Air
The Story of the Late Mr. Elvesham
In the Abyss
The Apple
Under the Knife
The Sea Raiders
Pollock and the Porroh Man
The Red Room
The Cone
The Purple Pileus
The Lifting of Jane
In the Modern Vein
A Catastrophe
The Lost Inheritance
The Sad Story of a Dramatic Critic
A Slip Under the Microscope
The Reconciliation
My First Aeroplane
Little Mother Up the Marderberg
The Story of the Last Trump
The Grisly Folk
The Crystal Egg
The Star
The Story of the Stone Age
A Story of the Days to Come
The Man Who Could Work Miracles
Filmer
The Magic Shop
The Valley of the Spiders
The Truth About Pyecraft
Mr. Skelmersdale in Fairyland
The Inexperienced Ghost
Jimmy Goggles the God
The New Accelerator
Mr. Ledbetter's Vacation
The Stolen Body
Mr. Brisher's Treasure
Miss Winchelsea's Heart
A Dream of Armageddon

— — — CLIP COUPON — — —

GREENPARK CO. Dept. SS-6
245 GREENWICH ST.
NEW YORK, N. Y.

Gentlemen:
I am enclosing $4.98. Please send me postpaid the shorter works of H. G. Wells.

Name .....

Address .....

City..... State.....

SCIENCE NEWS OF THE MONTH

(*Continued from page* 1147)

breed famine or war. The population of the world, at the present rate of increase, doubles every sixty years; and the population of the United States has doubled every thirty-three years. Using the world rate of increase to calculate his totals, Dr. Myers says that at the end of 60, 120 and 180 years, the population of the United States will be 240,000,000, 480,000,000, and 960,000,000 respectively; and that in 240 years the population of this country will be 1,920,000,000—a figure materially in excess of the present population of the earth.

"We may abolish war, eliminate pestilence, and for a time we may muzzle famine; but, if the present rate of population increase maintains long enough, it seems an inescapable conclusion that famine will again be a world-wide menace."

DO YOU KNOW that modern criminals fear the Scientific Detective?

DO YOU KNOW that Science, which is conquering the earth and the air, is now starting to conquer CRIME?

If you have not already done so, ask your news agent to reserve a copy of

SCIENTIFIC DETECTIVE MONTHLY

the newest of the Gernsback publications. In it you will read, not only the up-to-date details of scientific detection of crime, but also thrilling scientific-detective stories by the foremost authors in America and Europe, among whom we number Edmond Hamilton, Dr. D. H. Keller, Arthur B. Reeve, (Editorial Commissioner) S. S. Van Dine, Austin Freeman, Edwin Balmer (now Editor of the Red Book) Henry Leverage, (author of Whispering Wires) and many others. Only 25c buys you the most interesting, authentic, modern and enthralling magazine in its field.

Avoid disappointment, and ask your news agent to reserve a copy for you—SEE HIM TODAY.

NEW TELEPHONE SPEAKS DIALED NUMBERS

Sergius P. Grace, assistant vice-president of the Bell Telephone Laboratories, demonstrated recently a new automatic telephone, the dial of which speaks its call numbers to central while the person using the instrument remains silent. The new device works by means of a sound film, and it has been improved to such an extent that it will in all probability appear very shortly in regular service. The instrument does away with the need for some of the operators, and will be used to simplify and speed the hooking together of automatic and manually-operated telephone exchanges. It will enable operators on the manual systems to hear the automatic call like any other call.

There was also demonstrated an apparatus whereby speech can be directed electrically into the ear without the aid of a receiving set. The device works on the principle of radio broadcasting, and in its operation a part of the human ear takes the part of a condenser. It operates on the principle that the ear and its surrounding tissues are made to act as a plate of a condenser, the resulting vibrations of the ear-drum being interpreted by the brain as speech or music.

LEARN to WRITE for MAGAZINES and NEWSPAPERS

THERE is no more gratifying way to gain celebrity and add to your income than by writing. Journalism is a profession requiring no outlay except for pens and paper, and publications all over the world are clamoring for stories and articles of every nature. The magazine you are reading, as well as every other one, pays high prices for material that is accepted.

How often you have struck upon an idea that you knew would make good reading! Do you know how to write it up—how to market it? Are you familiar with the various "kinks" that distinguish the practised writer from the amateur?

The Practical Course in Journalism

By Henry J. Brockmeyer

formerly of the Editorial Staffs of the *New York Sun* and *New York Evening Post* teaches you by a short and interesting method all the essential facts about journalism — composition, editing, proof-reading and selling of your articles.

This is a concise and understandable course of instruction, as well as a valuable reference manual for the reporter and magazine writer. Do not think that you have to be a talented author to have your writings accepted. What the reading public wants is ideas and experiences clearly expressed. Mr. Brockmeyer is a veteran journalist and has helped hundreds of aspiring reporters to become competent newspaper men and feature writers. This course gives you the concentrated essence of his wide experience, and it is now available at a GREATLY REDUCED PRICE!

Send No Money

ONLY **$2.98** for the complete set of six comprehensive volumes. A very limited number of these courses are obtainable at this special low price.

THE PRESS GUILD, INC.
16-18 E. 30th St., New York, N. Y.
Please send me your PRACTICAL COURSE IN JOURNALISM, for which I will pay postman $2.98, plus postage.

Name . . ..

Address .....

City..... State.....
SFG-8

GET STRONG with these 8 Improved Muscle Builders—All for $5.00

With Illustrated Course

Realize your ambition and develop muscles of a super-man. WHY SUFFER? Easily master facts which now seem difficult—if you want physical culture for your health's sake, this equipment is what you need. With this special offer you HAVE AT LEAST HALF. We furnish 10 make chest expander adjustable to 300 lbs. resistance. Made of pure live steel strength, springy, rubber to act to give resistance. You need the best muscle development. You also get a pair of patented hand grips for the extremely powerful grip and forearm. We include vital extending parts which permit you to develop your back, arms and legs—a real muscle strength. The head strap permits you to develop muscles of your neck. Develop by pushing with foot strap furnished. This gives quick, welcome. In addition you get monthly weight, science consulting privilege and diagram charts, how to develop any part of your body. Act Now!

Send No Money

CRUSADER APPARATUS CO.,
Dept. 3105, 44 Parker Ave., Maplewood, N.J.

I accept your offer. Send me everything described in your advertisement by return mail. I will pay postman $5.00 plus postage on arrival. It is understood if I am not entirely satisfied after examination, I can [redacted] will refund my money.

Name.....

Street.....

City..... State.....

Note—No C. O. D. orders to Foreign Countries except Canada.

RESHAPE your NOSE

to beautiful proportions—while you sleep!

Thousands have used the ANITA Nose Adjuster to improve their appearance. Shapes flesh and cartilage—quickly, safely and painlessly. Doctors praise it. Results are lasting. Write for 30 DAY TRIAL OFFER and FREE BOOKLET.

Gold Medal Winner 1933

ANITA INSTITUTE, 582 ANITA Bldg., Newark, N. J.

LADIES! I positively guarantee my great Successful "Relief" Compound. Safely relieves some of the longest, most obstinate, abnormal cases in 3 to 5 days. No harm, pain or interference with work. Mail $2.00; Double Strength $3.00. Booklet Free. Write to-day.

DR. B. X. SOUTHINGTON REMEDY CO.
Kansas City, Mo.

MARRY! BIG DIRECTORY with descriptions and photos, mailed in plain wrapper for ten cents.

BONAFIDE CO., Dept. 68, Kansas City, Mo.

BOOK REVIEWS

MASTERING A METROPOLIS, by R. L. Duffus. 302 pages, illustrated, stiff cloth covers, size 5½" by 8⅛". Published by Harper and Brothers, New York and London. Price, $3.00.

At first sight one would believe this book to be of interest only to New Yorkers. But there is an inherent romance in the building of a great city—the gathering together of millions of people—and the problems connected with their feeding, transportation, housing, and living—which gives this work a universal appeal.

Of course, city and regional planners, architects and those interested in the growth of the modern city will find this book especially fascinating reading. The book itself is the authorized popularization of the ten detailed and technical volumes published by the Committee on the Regional Plan of New York and Its Environs. The author describes, simply and clearly, the outstanding features of the comprehensive plan worked out by this committee after seven years' study and research work. The book is illustrated with maps and pictures which help the reader visualize the extraordinary developments outlined. The author looks forward to the year of 1965, in which New York will be a marvelous city, holding myriads of people, who will move about without congestion or delay. This is indeed a picture that the average automobile driver and even the much harried pedestrian can only hope will come true.

IF you are a lover of science fiction you must certainly obtain the May issue of AIR WONDER STORIES, now on all newsstands. This magazine specializes in science fiction in which aviation of the future is featured. You will find here your favorite authors in stories as stimulating and exciting as those in SCIENCE WONDER STORIES

Contents of the May issue are:

"The Air Trap"
By Edward E. Chappelow

"Women with Wings"
By Leslie F. Stone

"The Arctic Rescue"
By Walter Kateley

"The Sky Ruler"
By Ed Earl Repp

"The Bat-Men of Mars"
By Wood Jackson

"The Meteoric Magnet"
By Moses Schere

And Others

JUNGLE PORTRAITS, by Delia Akeley. 251 pages, profusely illustrated. Stiff cloth covers, size 8½" by 5¾". Published by The MacMillan Company, New York. Price, $3.50.

No one who has a liking for animals, an interest in tropical adventures, and descriptions of jungle life, should miss this book, which describes the expeditions of two famous hunters in Central Africa. Carl Akeley is struck down by a charging elephant, left wounded and alone in the bush: Delia Akeley, at the camp miles away organizes and carries through an expedition to rescue him in spite of the opposition, the blackness, and the teeming African rain.

She describes the heart of the Congo, in which she finds the Pygmies—strange shy little folk amongst whom she lives peacefully for weeks. She hunts elephants and crocodiles, studies the habits of the apes, and takes motion pictures of thousands of pink flamingos. She describes the bush

(*Continued on page* 1150)

Quit *that* JOB Make BIG MONEY

Put on your hat . . . walk out. Turn your back on low pay forever. What is $5 or $6 a day? . . . it's nothing . . . bet you could use a lot more. How about $20 to $30 every day? Now you're talking and now you can make that and more if you take on the KRISS-KROSS Stropper proposition. This scientific stropper puts a keen edge on a razor blade in exactly 11 seconds . . . and every man you demonstrate this to will buy in a hurry. Do what thousands of other fellows are doing . . .

Make $5,000 to $10,000 Every Year

Look what C. V. Reitan up in Minnesota says . . . "When I can make $60 profit in three hours, should have the world by the tail in no time." Don't put it off . . . fill in the coupon . . . mail it . . . get the facts quick . . . free.

Free Razor Offer For Promptness

We want fellows that act quick . . . that are on the job. Because of this we are making a FREE RAZOR offer for promptness. Don't delay . . . get your name in now!

KRISS-KROSS Corp., Dept. D-2624
1418 Pendleton Ave., St. Louis, Mo.

Tell me how I can Make Big Money demonstrating KRISS-KROSS Stroppers. Send complete details of your selling plan and your FREE RAZOR offer.

Name.....

Address.....

City..... State.....

PISTOL SLING SHOT!

NOTHING LIKE IT BEFORE! If you like hunting and outdoor sports, you'll jump with joy when you see this new PISTOL SLING SHOT. Cocks and shoots like real pistols. Special aiming sights and extra heavy pure gum rubbers enable you to shoot with power and accuracy of the best air rifles. Ideal for indoor and outdoor target practice. Shoots stones, marbles, lead balls, etc. Sample shot FREE! Scientifically and practically made to last a lifetime! Pin a dollar bill or money order to this ad [redacted] and mail today. Stamps accepted. If not satisfied return within 5 days and your money will be promptly refunded.

ONLY **$1.00**

R. B. SPECIALTY CO.
Dept. S-340, 220 E. 3rd St., Cincinnati, Ohio

PATENTS

TRADEMARKS—COPYRIGHTS

Before showing your idea to anyone, send for new — "Duplicating Invention Record" — you Keep a copy for evidence and send me a copy for advice and exact cost of patent. Prompt Personal Service. Advice and Record free on Request.

JOHN J. LYNCH, Registered Patent Attorney
41-F Park Row, New York City — International Building, Washington, D. C.

WE MATCH PANTS To Any Suit!

Double the life of your coat and vest with correctly matched pants. 500,000 patterns. Every pair hand tailored to your measure! No "readymades." Our match sent FREE for your O. K. before pants are made. Fit guaranteed. Send piece of cloth or vest today.

SUPERIOR MATCH PANTS COMPANY
815 So. Dearborn Street, Dept 375, Chicago

Over the Mountains from Los Angeles 559 Miles on 1 Gallon GAS

THE WHIRLWIND SAVES MOTORISTS MILLIONS OF DOLLARS YEARLY

See the Craters in the MOON!

NO JOKE TO BE DEAF

MAKE UP TO $40 A DAY

BOOK REVIEWS

(Continued from page 1149)

dwellers of Kenya Colony and draws vivid word pictures of the enchanting African scenery. An interesting treatment of an interesting subject.

EXPERIMENTAL PHYSICAL CHEMISTRY, by Farrington Daniels, J. Howard Mathews, and John Warren Williams. 475 pages, illustrated, stiff cloth covers, size 5¾" by 8¼". Published by the McGraw-Hill Book Company, New York. Price, $3.50.

This volume is the latest addition to the authoritative McGraw Hill publications known as the "International Chemical Series." The three authors are professors of chemistry at the University of Wisconsin. In their volume they attempt to illustrate the principles of physical chemistry, to train the student in careful experimentation, to develop familiarity with apparatus, to give the student confidence in using physical chemical measurements, and to encourage ability in research. The work is by no means for the beginner, or for the mere dilettante; it is a serious scientific effort for the use of scientists. It covers practically the entire field of its subject. Unquestionably this valuable and scholarly work will become standard, because of the scope of its material and because of the freshness of its viewpoint and its adaptability to the needs of the student.

SPEECH AND HEARING, by Harvey Fletcher, Ph.D. 331 pages, illustrated, stiff cloth covers, size 6¼" by 9". Published by the D. Van Nostrand Company, Inc., New York. Price, $5.50.

This book, which is rather technical in most of its aspects, is the result of research work conducted in the Bell Telephone Laboratories in New York City. It presents also a digest of work done during the past fifteen years in its particular field. Dr. Fletcher, who is responsible for the volume, has been the director of this work.

The book discusses the production of natural and artificial speech sounds, the frequency and the power requirements of these sounds, and the organs of speech themselves. It treats in detail of the phonautograph, the phonograph, and the oscillograph, all three being recording instruments for various purposes. The Bell Telephone Laboratories have developed instruments of which the average man hears little, but these devices are of the utmost use in improving speech and the instruments for the transmission of speech.

There is a complete discussion of interesting aural phenomena—the acuity of hearing, the losses of hearing, the recognition of sounds, and the masking of one sound or group of sounds by another. The book treats also of the development of the audiometer, an interesting invention; of loudness, binaural phenomena (in which both ears are concerned); and of the qualities and characteristics of music and noise. Several appendices and charts, in addition to the text, make this volume authoritative in its own department of science.

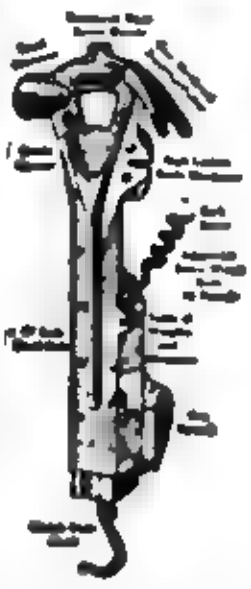
THE WAY OF THE SEA, by Harold Peake, F.S.A., and Herbert John Fleure, D.Sc. 168 pages, illustrated, stiff cloth covers, size 5½" by 8¼". Published by the Yale University Press, New Haven, Connecticut. Price, $2.00.

This interesting little book by two eminent anthropologists is one which will appeal especially to our readers. It is the sixth of a series of eight volumes published under the general title of "The Corridors of Time." Dealing with the period of exploration, travel, and culture from 2100 to 1400 B. C., it presents an authentic and authoritative picture of one of the crucial periods in the history of the world. This period is regarded as crucial because it gives evidence of being a clear cut dividing line in the story of ancient times. It was a time of strife and stress, and the peoples of the Mediterranean basin emerged from it with a higher morality, an intenser intellectual life, and an added incentive to travel and exploration.

The volume is concerned mainly with the evidences of the travel that took place with the material remains of the results of international cultural intercourse. It deals with the relics of the various peoples; with the awakening of the west, the merchants of the Aegean; Spain and Southern

(Continued on page 1151)

Ten Tools In One



A small but handy article which serves for every possible need of the all-round mechanic. Invaluable in any emergency.

An excellent combination of utilities for the household—every ownership featured: hammer, knife - sharpener, nail-puller, bottle - opener, screw-driver, can - opener, corkscrew and weight-scale. Just glance at the illustration and you will see how really useful this article is. Only 10 in. high. Indispensable to carmists, Campers, Boy Scouts, sportsmen, globetrotters, etc.

Price $1.00 Postage Paid

Be the first one in your town to own the "Ten Tools In One." Send in your name, address, city and state with one dollar.

GRENPARK TOOL CO.
Dept. PS-4
245 Greenwich St.
New York, N. Y.

AGENTS WANTED

RAZOR BLADE SHARPENER. Wonderful Simple Invention. Same model sharpens all makes including curved blades. Good proposition part-time agents. Sample postpaid, $1.50. Postage stamps accepted. Satisfaction guaranteed. Price complete per razor blade. VIKING SPECIALTY COMPANY 422 Polk Street, San Francisco, California

CHEMICALS

BOOKLET OF EXPERIMENTS and chemical catalog 15c. General Chemical Company, Box 207, Rosslyn, Pa.

DETECTIVES

DETECTIVES Earn Big Money. Excellent opportunity. Experience unnecessary. Particulars free. Write, George Wagner, 2190-B Broadway, N. Y.

INSTRUCTION

LEARN TATTOOING. Instruction catalog, 25cts. Miller, X401 Main, Norfolk, Virginia.

MEDICAL

LOST VITALITY — The Specific Pill and Wincherster's Hypophosphites, $3.00 per box or bottle, postpaid, literature free. Winchester & Company, Established 72 years, Box 237, Mount Vernon, New York.

OLD MONEY WANTED

$5 to $500 EACH paid for Old Coins. Keep ALL old money. Many VERY valuable. Get Posted. Send 10c. for Illustrated Coin Value Book, 4x6. Guaranteed Prices. We buy and sell. COIN EXCHANGE, Room 20, Le Roy, N. Y.

PHOTOGRAPHY

SEND ME 40c. and negative and receive by return mail beautiful 8x10 glossy finish enlargement. Other photographic work at lowest prices. Send for circular to Charles, 210 Chestnut St., Camden, N. J.

PORTRAITS

LOOK — HAND DRAWN PORTRAITS — $1.00. Send your favorite picture or snapshot. Pay the postman. Joseph Wrobel, 2520 South Wabash Avenue, Chicago, Illinois.

PRINTING

1,000 BUSINESS CARDS $2.75 postpaid. Samples free. John Miller, Montgomery Ave., Narberth, Pa.

SONG POEM WRITERS

SONG POEM WRITERS—"Real" proposition. Hibbeler, D189X, 2104 Keystone, Chicago.

SONG POEMS WANTED. Publishing offers accepted. Yours may mean $$$. Limited number. Reliable proposition free. MacDonald's Song Service Bureau, 43 Keenan, Watertown, Mass.

QUIT TOBACCO

No man or woman can escape the harmful effects of tobacco. Don't try to banish craving the hold tobacco has upon you. Join the thousands of inveterate tobacco users that have found it easy to quit with the aid of the Keeley Treatment.

KEELEY Treatment For Tobacco Habit Successful For Over 60 Years

Quickly banishes all craving for tobacco. Write today for Free Book telling how to quickly Free yourself from the tobacco habit and our Money Back Guarantee.

THE KEELEY INSTITUTE
Dept. L-711 Dwight, Illinois

HOW TO OBTAIN
A Better Looking Nose!
Improve your personal appearance

My new Model 25 Nose Shaper is designed to improve the shape of the nose by remoulding the cartilage and bony parts safely, and painlessly. This is accomplished through the very fine and precise adjustments which only my patented Model 25 possesses. Results are lasting. Can be worn at night, or during the day. Money refunded if not satisfied after thirty days' trial. Write for free booklet to M. TRILETY
Pioneer Nose Shaping Specialist
Dept. 122 Binghamton, N. Y.

ELECTRIFY YOUR RADIO FOR ONLY $6.85 COMPLETE

Why discard your present good set when you can electrify it for only $6.85, and banish the annoyance and expense of buying new "B" batteries?

Over 100,000 Townsend "B" Power Units In Use

Hooked up in a few minutes. Use same tubes—no changes. You'll be amazed at the improvement in reception and distance getting. Send name and address today for full details, proof and Free Trial Offer.

TOWNSEND LABORATORIES
712 Townsend Street Chicago, Illinois

SCIENCE FICTION SERIES

An interesting announcement of the New Science Fiction Series will be found on page 1060 of this issue. Turn to this page and learn of the short stories of scientific fiction.

BOURBON RYE & GIN

All flavors. Genuine old-fashioned taste and aroma. Highest Quality. Satisfaction Guaranteed.

Trial size 75c; ½ pt. $2.50; 1 pt. $4; ¼ gal. $20; gal. $35. 2 oz. flavors 1 gal. beverage.

Send and agents oil free with orders of 1 pt. or more. Complete catalog flavors, supplies, etc., on request. **FREE**

THOMAS WILSON CO., Dept. SW, Springfield, Missouri.

LONELY HEARTS

Let us arrange a romantic correspondence for you. Meet your sweetheart thru the world's foremost high-class social correspondence club, a club for refined lonely people. Members everywhere; strictly CONFIDENTIAL, efficient and dignified service. We have made thousands of lonely people happy, why not you? Write for FREE Particulars.
EVA MOORE, BOX 995, JACKSONVILLE, FLA.
I HAVE A SWEETHEART FOR YOU

PATENTS Write for Free Guide Book, "HOW TO OBTAIN A PATENT" and Record of Invention Blank. Send model or sketch and description of your invention for our Free Opinion whether it comes within Patent Office Rules. RADIO and ELECTRICAL Cases a Specialty.
PAYMENT OF FEES IN INSTALLMENTS
VICTOR J. EVANS & CO., 923 - 9th, Washington, D. C.

DO YOU WANT TO **STOP TOBACCO?**

Banish the craving for tobacco as thousands have. Make yourself free and happy with Tobacco Redeemer. Not a substitute, not habit forming. Write for free booklet telling of injurious effect of tobacco and dependable, easy way to relieve the craving many men have.

Newell Pharmacal Co. Dept. 929 Clayton, Mo. FREE BOOK

BOOK REVIEWS

(*Continued from page* 1150)

France; Brittany and Northern France; the west Baltic region; the British Isles; the glamorous Babylon; Asia Minor and its cultural centers, and Egypt. In addition, there are chapters descriptive of the monuments and pottery of each nation; and the 72 illustrations add a great deal of interest to this scholarly work. A chronological appendix gives an intelligent view of the development of culture during the period covered. Our readers will find a great deal to attract them in *The Way of the Sea.*

IF you have not as yet seen the SPRING SCIENCE WONDER QUARTERLY
WATCH FOR THE GOLD COVER
Be sure to procure a copy immediately from your newsstand.
ON SALE NOW!
This magazine specializes in interplanetarian science fiction and the Spring issue contains the following marvelous stories:
"The Stone from the Moon"
By Otto Willi Gail
"The Ape Cycle"
By Clare Winger Harris
"Via the Hewitt Ray"
By M. F. Rupert
"The Thought Materializer"
By F. R. Long
"Within the Planet"
By Wesley Arnold
"The Mad Destroyer"
By Fletcher Pratt

INSECT WAYS, by Clarence M. Weed. 322 pages, profusely illustrated. Stiff cloth covers, size 5" by 8". Published by D. Appleton and Company, New York. Price, $2.50.

To relate the doings of ants, bees, wasps, grasshoppers, and beetles in simple everyday language is a feat in itself. Mr. Weed introduces us to the lowly forms of life in narrative style, as if he were recounting the doings of the neighbors next door. He tells us of their devices for securing food and providing for their young, their surprising craft in self-protection, and the important part they play in human affairs.

The author is a born story-teller as well as a scientist, and *Insect Ways* is a book which opens to the understanding mind a vast store of new and living interests.

THE ART OF SOUND PICTURES, by Walter B. Pitkin and William M. Marston, with an introduction by Jesse L. Lasky. 287 pages, illustrated, stiff cloth covers, size 5" by 8". Published by D. Appleton and Company, New York and London. Price $2.50.

The first thing a potential reader wants to know about a book dealing with some definite commercial or artistic development is: *Who wrote it?* and *Is the book an authoritative one?* So in case our readers are not familiar with the name of the authors, we will tell them that Walter B. Pitkin is a Professor of Journalism at Columbia University and was Story Advisor to Universal Pictures Corporation until he took up the post of Eastern Story Editor for Equitable Pictures Corporation. William M. Marston is also associated with the moving picture industry and is now Vice-President of the Equitable Pictures Corporation.

The book itself deals with the new technique of sound pictures, a technique that is not yet fully developed. A book on a perfectly new art can hardly be termed authoritative, but nevertheless, it may be, and in this case IS, decidedly interesting. A considerable amount of space is devoted to scenario and story writing for sound pictures, and this subject will have a fairly wide appeal to readers of all types. The laws of story writing and psychology, as laid down by the author, are open to controversy, however.

Cash In Your Spare Time

If you want to add from $10 to $35 a week to your present earnings, here is your chance. Hundreds of men are making good money filing saws on the Foley Automatic Saw Filer.

The Foley Model F-5 "3-Way" Automatic Saw Filer

Files all kinds of hand saws, band saws and Circular Saws on ONE machine.

$10 Brings It to You

Easy and simple to operate. No eye-strain. Adjust the saw in machine and turn on the power — it runs automatically.

Have Your Own Business

Many men are making big money with their Foley saw-filing businesses. Steady, repeat customers bring them a regular income. Become independent! Have your own cash business, too. Free Plan helps you start. Coupon brings it.

Send Coupon Now!

FOLEY MANUFACTURING CO.
1506 Foley Building,
11 Main St. N. E., Minneapolis, Minn.
Please send me your Free Plan and tell me how I can make Cash in my Spare Time.
Name .....
Address .....
City and State .....

RADIO BARGAINS

Short-Wave Sets, 1 tube; receives from 20 to 550 meters ..... $ 6.45
7-Tube A.C. Sets 26.50
A B C Power Packs 9.75
Power and Filament Transformers 4.00
Tubes: UX type, Fully Guaranteed, No. 250, $2.85; No. 281, $2.00; No. 245, $1.25; No. 224, $1.75; No. 227, 75c; No. 226, 65c; No. 171, 75c. Audio transformers, 75c. Variable condensers, 50c.
CHAS. HOODWIN CO.
4240 Lincoln Ave. Dept. E-15 Chicago, Ill.
DEALERS IN BANKRUPT RADIO STOCKS

SONG-WRITERS!

Substantial Advance Royalties are paid on work found acceptable for publication. Anyone wishing to write either the words or music for songs may submit work for free examination and advice. Past experience unnecessary. New demand created by "Talking Pictures", fully described in our free book. Write for it Today—Newcomer Associates
761 Earle Building, New York, N. Y.

Engines & Motors Big Catalog No. 306

Illustrating Electrical, Mechanical and Model Maker's Supplies, Small Steam & Gasoline Engines, Motors, Generators, Lathes, Drill Presses, Bench and Band Saws, etc., 16-32 & 64 Watt Dyna-Motors, School Projects, Engine Castings, Motor Parts, etc., Books, Blue prints, Brass and Steel Tubing, Gears, Pulleys, Hardware, Experimental Material.
LOOMIS ELECTRIC & MANUFACTURING CO.
2822A N. CALIFORNIA AVE., CHICAGO, ILL.

Feel 10 Years Younger In 6 Days

SCIENCE now knows that the tiny prostate gland frequently causes foot health and strength, night rising, constipation, pains in the back, legs, feet, etc., in men past 40. Unless corrected this may lead to miserable old age and grave surgery. Now an amazing drugless treatment is giving swift, permanent relief to thousands. Used and endorsed by physicians, hospitals and sanitariums. Sent on trial. Feel 10 years younger in 6 days or pay nothing. Write for offer and free book or during facts about men past 40.
W. J. KIRK, Pres.
828-A Kirk Bldg. Steubenville, O.

TRICKS—MAGIC—INSTRUCTION

For 25 years the management of this firm has sold merchandise by mail. This is our guarantee to you: We promise courteous treatment and prompt shipment.

Order Direct From this Page — **WE PREPAY ALL ORDERS OVER 50 CENTS** (Remit Five Cents extra for all orders below 50c) Remit by check, money order or U. S. Postage stamps. Canadian and foreign stamps not accepted. — **Money Refunded If Goods Unsatisfactory**

Flaroscope

This is a fine imported combination microscope. Really two instruments in one. Use end used for high magnification, such as seeing bacteria in milk or water. Other end to see parts of insects, flower specimens, etc. Finished in gold brass. Magnifies about 25 diameters.

No. 8516 Flaroscope. Prepaid **65c**

Microscope

Here is a real high power imported microscope for instruction and laboratory work. Has revolution rotating light mirror. Has adjustable lens for correct focusing. With it come 3 specimen slides. Entirely brass. Packed in neat leatherette box. Magnifies about 50 diameters.

No. 8517 Microscope. Prepaid **$1.90**

Magnifier

This fine folding pocket magnifying glass, also called linen tester, is made entirely of gold lacquer brass. Has powerful lens that magnifies everything 10 times. Has fixed focus. Just open it and it is ready. When folded this magnifier occupies a space about as large as a quarter and twice as thick.

No. 8514 Magnifier Prepaid **35c**

Ooh-La-La Ring

Handsomely carved platinum finish. Looks just like any other ring. But, oh boy, wait till you look through the "VIEW." Strong magnifying glass shows French actress when viewed against light. Ring has large imitation diamond. When ordering enclose a strip of paper giving size of your finger.

No. 8513 Surprise ring. Prepd **35c**

Periscope

See what's going on behind your back with this Seebackoscope. Used like a magnifying glass. No one knows you're watching them. Gives you "eyes in your back." This article is made in molded bakelite and its size is 8"x1½".

No. 8505 Periscope. Prepaid **25c**

Microscope

A real high-powered imported pocket microscope for instruction and laboratory work. Has adjustable and automatic lens for correct focussing. Comes with one prepared subject and three specimen glass slides. Entirely made of lacquered brass. Packed in a neat leatherette box. Magnifies 40 diameters.

No. 8617 Microscope. **$1.40**

10c Compass 10c

Fine imported magnetic compass. ACCURATE Pocket size. Invaluable for hikers, automobilists. Often saves lives. Use it to tell live electric wires; make your own galvanometer. Fully nickel plated. The actual article is about one-half again as large as illustration shown.

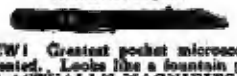
No. 8507. Compass Prepaid **10c**

X-Ray Tube

With this little instrument you apparently see through your hand, cloth, wood, stone and other objects. See the lead in a pencil, the stone hafa in a pipe, the bones in your fingers. An amazing optical illusion that no one has ever satisfactorily explained. Startle the girls by showing them what this tube can do and let them imagine the rest.

No. 8505. X-Ray Tube. Prepaid.. **10c**

Wonderscopes



NEW! Greatest pocket microscope invented. Looks like a fountain pen and ACTUALLY MAGNIFIES 28 TIMES. Hair looks as big as a rope. See the pores in your skin. Has slide adjustable lens. For home, laboratory or shop. Full black enamel with clip. Its size measures 5"x¾". Must be seen to be appreciated.

No. 8522. Wonderscope A— Prepaid **95c**

No. 8682 Wonderscope B—Same as above but adjustable to the amount of light available. Prepaid **$1.35**

Luminous Paint

Make your own luminous articles. Paint watch and clock hands, electric light switches, push buttons, keyholes, house numbers, etc. 1,000 uses. Articles treated stand out brilliantly in dark. The darker the room, the more brilliancy.

No. 8508 Luminous Paint. Prepaid **25c**

No. 8508-A Large Size **$1.00**

Nose Blower

The real article! Conceal nose blower in your handkerchief and blow into instrument while you pretend to blow your nose. Everyone stops and looks at you. There never was a terrible noise like it. Keep it up as long as you like.

No. 8510 Nose blower. Prepaid. **10c**

Bluffgun

Bluff your friends with this gun. Made of composition metal handsomely nickeled. Exactly same size, weight and shape as real article. Fine to bluff burglars. Used also as desk paper weight. Size of this gun is 4½" long and 3" wide.

No. 8504 Bluffgun. Prepaid. **65c**

Imp in the Bottle

A real Cartesian diver—Can you explain how it works? A little glass imp placed in a bottle of plain water and sealed with special rubber cap, dances up and down in the liquid at your will. Will perform unique antics. An interesting, amusing and scientific novelty. Bottle 4 inches high.

No. 8675. Imp in Bottle. Prepaid **35c**

Microscopes

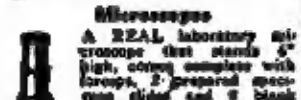
A REAL laboratory microscope that stands 5" high, comes complete with forceps, 2 prepared specimen slides and 2 blank glass slides, all packed in a cherry wood box with brass hinges and fittings. Made entirely of lacquered brass, with powerful lenses. Entirely demountable to facilitate cleaning. Has arcade (open both sides) frame and rotary reflecting mirror. Made in three models for use in home, office, or laboratory.

No. 8645. Microscope. Magnifies 50 diameters. Prepaid **$3.75**

No. 8646. Microscope. Magnifies 70 diameters. Prepaid **$5.50**

No. 8647. Microscope. Magnifies 90 diameters. Prepaid **$6.75**

Telescopes



We carry only high grade imported French telescopes. All come in gold brass lacquer. The most powerful telescope made. No. 8650 is covered with black Morocco leather. Brings object nearer ten times. This number has slow brass dust cap and automatic grenade piece. Comes in imitation leather carrying case.

No. 8604. Telescope. Opn draw. 6¾". Prepaid **98c**

No. 8648. Telescope. Two draw. 9¾". Prepaid **$2.00**

No. 8649. Telescope. Three draw. 12¾". Prepaid **$3.50**

No. 8650. Special Telescope, 6 sections, 18½" long. Prepaid **$4.95**

Big Magic Set

A chest of magical apparatus and directions for performing TWELVE AMAZING MAGICAL FEATS. An entire evening's entertainment can be given with them. Includes the Magic Vanisher, Cigarette Vanisher, Rice Coins, Master Memory, Beads on String, Obedient Ball, Vanishing Watch, and many others. Biggest value ever offered, worth double the price we ask.

No. 8714. Big Magic Set. Prpd. **$1.00**

Real Pistol

Here's a real pistol, yet small enough to be used as a watch charm. Illustration is full size. Imported, best European workmanship. Excellent reproduction of standard pistol. Cut shows pistol broken open to load blank cartridge. When trigger is pulled, cartridge goes off with a loud BANG, that can be heard for a block. Pistol entirely made of steel, nickel plated. Handle is beautifully engraved. Octagonal barrel. Comes in box, with cleaning rod and 25 blank cartridges AT NO EXTRA CHARGE. (As explosives are prohibited to go by mail, pistol is sent express collect).

No. 8580 Pistol **$1.20**

No. 8509A Box of 25 Cartridges, by express collect **25c**

Opera Glass Charm

A pretty and unique watch charm. 1¼"x1". Exact duplicate of real Opera Glasses. Powerful lenses that clearly magnify the view. Assorted views, scenic and French actresses. Fitted with ring to attach to watch chain. 3 VIEWS to each charm.

No. 8585. Bona Opera Glass Charm. Prepaid **25c**

No. 8586. Rolled Gold Opera Glass Charm. Prepaid **75c**

Cigaret Gun

NEW. Actually shoots cigarettes. New improved double action model. From the trigger lightly—out shoots a cigarette—press it again, back flies the lid revealing it a cigarette case. Looks like a real automatic. Made entirely of metal, with oxidized stocks, barrel and fittings. The same size as the real article, and weighs but 12 ounces.

No. 8616. Automatic Cigarette Gun. Prepaid **$1.79**

Magic Sets

Here is the best selection of three magic sets at bargain prices. The contents of any of these three sets are valued at 40c. Requires no skill to perform, are entirely automatic and simple in operation. Each box contains five or more magic articles and complete instructions for performing the various feats.

No. 8703. Coin Tricks. Prepaid
No. 8706. Magic Set. Prepaid.
No. 8707. Card Tricks. Prepaid.
Or all three numbers. Prepaid **25c** **65c**

Luminous Skeleton

A real startler. A big jointed figure of a skeleton, 12 inches high, that emits a ghastly radiance in the dark. Not a pretty sight but a big thrill producer. Gives you the creeps when you know about it—but a real surprise for those who come upon it unaware.

No. 8512. Luminous skeleton. Prepaid **15c**
3 for 40c

Wizardoek

A full deck of 52 linen finish cards that you can use for play or magic. Deck is cut tapered, one end narrower than the other. Draw away and pick out from the deck—and hundred of other amazing feats. Full instructions for performing 10 different tricks. Startle and entertain your friends. No skill required.

No. 8709. Wizardoek. Prepaid .. **75c**

Blackstone's Magic

A big 96-page book, every trick illustrated. Instructions for over 50 MAGICAL TRICKS—25 MATCH TRICKS—7 OPTICAL ILLUSIONS and MANY OTHER interesting diversions. No skill needed—no practice—no special apparatus. Written by the famous magician, Harry Blackstone. Neatly bound with highly lithographed covers. Most entertaining value ever offered.

No. 8661. Book of Magic. Prepaid **25c**

NEW!! Telegraph 25c

For the astonishing small sum of 25c you can learn telegraphy. Any wide awake boy or girl can learn the telegraph codes with this little outfit within from 30 to 60 days. Gives loud signals perfectly—nothing to wear out. No batteries. The instrument consists of hard fiber base, mechanical sounder and telegraph key knob. Screw to table or carry it in pocket. Guaranteed to give exact reproduction of telegraph sounds just like regulation sets. We also furnish free a set of telegraph codes as shown, and full instructions of how to learn telegraphy.

No. 8525. Telegraph Set. Prepaid **25c**

NEW!! Spintheriscope

Positively the most astounding scientific instrument ever developed. This instrument formerly sold from $1.00 to $10.00 upwards. Now it is possible to get it for a small sum. Witness actual destruction of thousands of Worlds by simply looking through the lens of the instrument. Actual radium in disintegrated before your eyes. You see the atomic bombardment plainly. Instrument is guaranteed to contain a minute quantity of radium. There is no more enthralling sight in the whole world. Nothing to wear out. Lasts forever.

No. 8524—Spintheriscope complete with instructions. Prepaid **65c**

Invisible Ink

A fluid in which you can write love letters, confidential messages, etc., without fear of detection. Remains entirely invisible until paper is heated. Used extensively by secret service operatives, detectives, etc.

No. 8528. Invisible Ink.—Per bottle, prepaid **15c**
(3 for 40c)

Combination Cigar, Cigarette, Pipe Holder

A combination pipe, cigar holder and novelty view. A bottle shaped novelty that has a scenic view in the top, may be converted into a pipe, a cigar holder or a cigarette holder. Made of highly polished wood with aluminum fitting. Stands 5" tall when closed. A useful article and a real novelty. Assorted views, French actresses and scenic pictures.

No. 8598. Combination Cigar Holder. Prepaid **75c**

Cigarettabangs

Here boys is THE novelty. Box contains a dozen tiny wood pegs—but they are "treated." Push the sharp end of peg into cigarettes about 1/3 in. Pegs are so small they're invisible. Then offer your friends the cigarettes. BANG, BANG! they go off—Yet ENTIRELY HARMLESS.

No. 8580. Cigarettabangs Prepaid **15c**

Midget Harmonica

The smallest harmonica made, only 1¾" long. It is a practical musical instrument and a popular novelty. Has four single holes, eight perfectly tuned reeds, brass plates, nickel finish covers and ring to attach to your watch chain or fob.

No. 8533. Midget Harmonica. Prepaid. **15c**

FREE!

Send for our new big fall catalog. Postal brings it.

SCIENTIFIC NOVELTY COMPANY. -247 Greenwich St., New York City

WHAT EVERY ELECTRICIAN WANTS TO KNOW!

JUST OUT!—*Latest Exact Information from A to Z!*

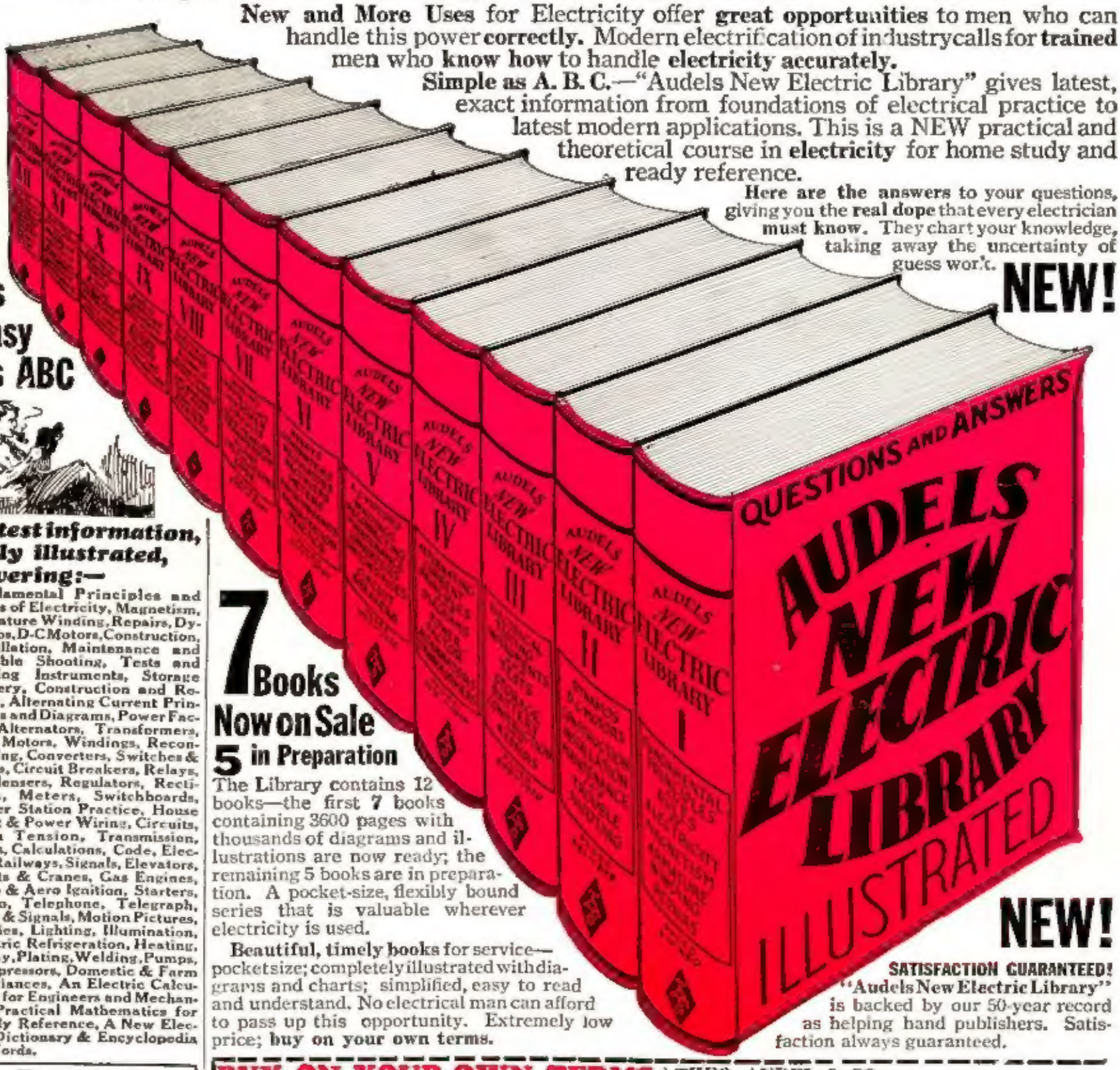
We take pleasure in announcing: "AUDELS NEW ELECTRIC LIBRARY"

New and More Uses for Electricity offer **great opportunities** to men who can handle this power **correctly.** Modern electrification of industry calls for **trained** men who **know how** to handle **electricity accurately.**

Simple as A. B. C.—"Audels New Electric Library" gives latest, exact information from foundations of electrical practice to latest modern applications. This is a NEW practical and theoretical course in **electricity** for home study and ready reference.

Here are the answers to your questions, giving you the **real dope** that every electrician **must know.** They chart your knowledge, taking away the uncertainty of guess work.

NEW!



As Easy As ABC

Latest information, fully illustrated, covering:—

Fundamental Principles and Rules of Electricity, Magnetism, Armature Winding, Repairs, Dynamos, D-C Motors, Construction, Installation, Maintenance and Trouble Shooting, Tests and Testing Instruments, Storage Battery, Construction and Repairs, Alternating Current Principles and Diagrams, Power Factor, Alternators, Transformers, A-C Motors, Windings, Reconnecting, Converters, Switches & Fuses, Circuit Breakers, Relays, Condensers, Regulators, Rectifiers, Meters, Switchboards, Power Station Practice, House Light & Power Wiring, Circuits, High Tension, Transmission, Plans, Calculations, Code, Electric Railways, Signals, Elevators, Hoists & Cranes, Gas Engines, Auto & Aero Ignition, Starters, Radio, Telephone, Telegraph, Bells & Signals, Motion Pictures, Talkies, Lighting, Illumination, Electric Refrigeration, Heating, X-Ray, Plating, Welding, Pumps, Compressors, Domestic & Farm Appliances, An Electric Calculator for Engineers and Mechanics, Practical Mathematics for Ready Reference, A New Electric Dictionary & Encyclopedia of Words.

7 Books Now on Sale

5 in Preparation

The Library contains 12 books—the first 7 books containing 3600 pages with thousands of diagrams and illustrations are now ready; the remaining 5 books are in preparation. A pocket-size, flexibly bound series that is valuable wherever electricity is used.

Beautiful, timely books for service—pocketsize; completely illustrated with diagrams and charts; simplified, easy to read and understand. No electrical man can afford to pass up this opportunity. Extremely low price; **buy on your own terms.**

NEW!

SATISFACTION GUARANTEED!

"Audels New Electric Library" is backed by our 50-year record as helping hand publishers. Satisfaction always guaranteed.

Beautiful, Timely Books

Read for Profit

BUY ON YOUR OWN TERMS

☐ **PLAN 1—ONE BOOK A MONTH**

Please enter my subscription to "*Audels New Electric Library*" to consist of twelve volumes, price $1.50 a volume ($10.50 for the seven volumes now ready). Mail one volume each month and as they are received, I will mail you $1.50 promptly.

☐ **PLAN 2—PAY 50c OR MORE A WEEK**

Please ship me for one week's free trial the first seven volumes of "*Audels New Electric Library*," $1.50 each ($10.50 for the seven volumes now ready). The remaining five volumes to be mailed as issued at $1.50 a volume. If satisfied, I will mail you 50c or more each week as payment for the first seven books and I will pay for the last five numbers as I receive them at $1.50 each.

☐ **PLAN 3—CASH PRICE $9.98**

Please ship me postpaid "*Audels New Electric Library*" for which I enclose remittance $9.98 in full payment for the seven volumes now ready.

You are to ship me on one week's trial the remaining five volumes as they are issued for which I will either pay $1.50 each as received or return to you. This price is based on 5% cash discount.

THEO. AUDEL & CO.,
65 West 23rd St., New York, N. Y.

Please ship me the NEW **"Audels Electric Library"** on the plan marked (X).

NAME .....

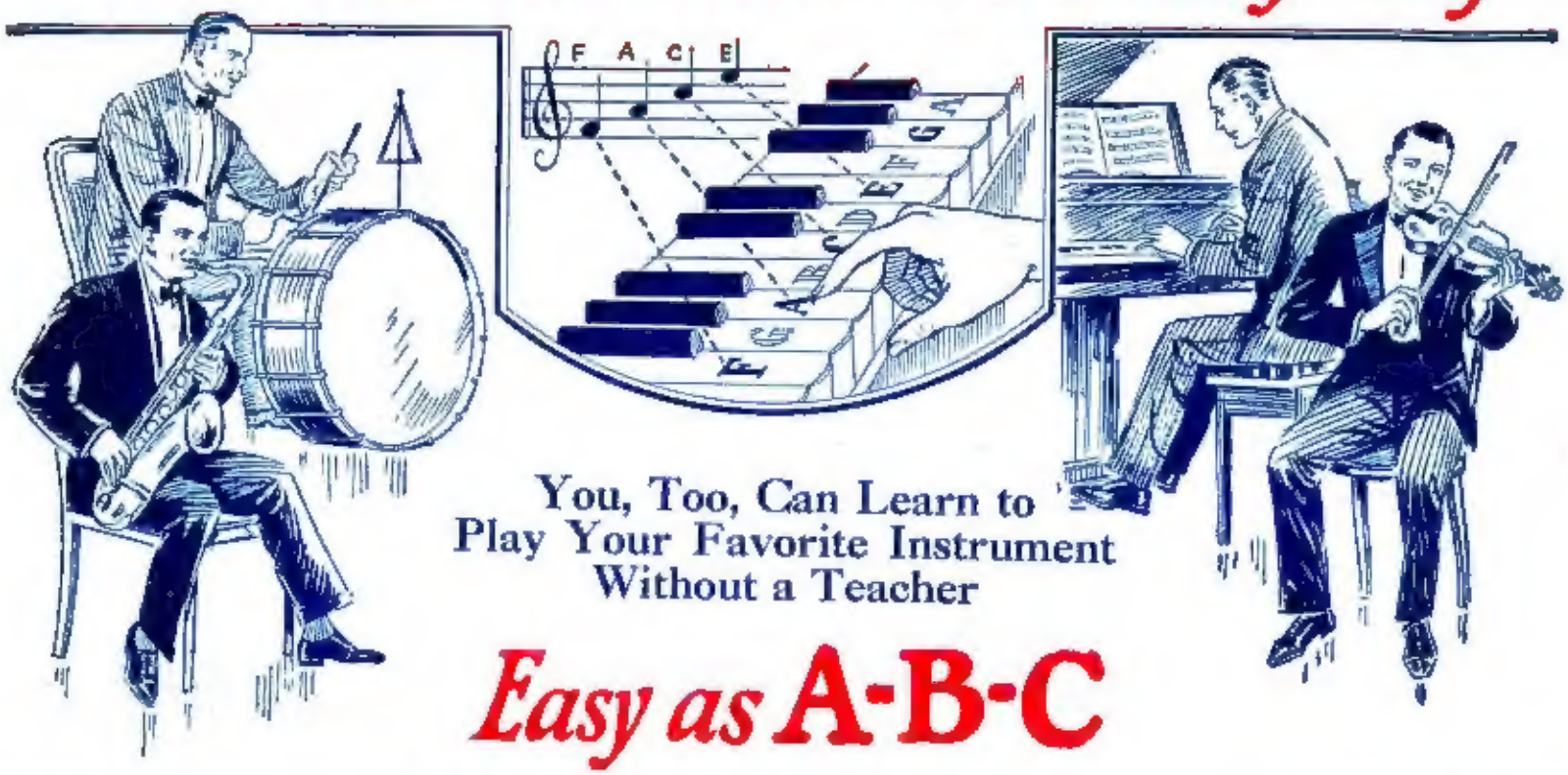
ADDRESS .....

OCCUPATION .....

EMPLOYED BY ..... Yer

Half a Million People

have learned music this easy way



You, Too, Can Learn to Play Your Favorite Instrument Without a Teacher

Easy as A-B-C

YES, over half a million delighted men and women all over the world have learned music this quick, easy way.

Half a million—500,000—what a gigantic orchestra they would make! Some are playing on the stage, others in orchestras, and many thousands are daily enjoying the pleasure and popularity of being able to play some instrument.

Surely this is convincing proof of the success of the *new, modern method* perfected by the U. S. School of Music! And what these people have done, YOU, too, can do!

Many of this half million didn't know one note from another—others had never touched an instrument — yet in half the usual time they learned to play their favorite instrument. Best of all, they found learning music *amazingly easy*. No monotonous hours of exercises—no tedious scales—no expensive teachers. This simplified method made learning music as easy as A-B-C!

It is like a fascinating game. From the very start you are playing *real* tunes perfectly by *note*. You simply can't go wrong, for every step, from beginning to end, is right before your eyes in print and picture. First you are *told* how to do a thing, then a picture *shows* you how, then you do it yourself and *hear* it. And almost before you know it, you are playing your favorite pieces—jazz, ballads, classics. No private teacher could make it clearer. Little theory — plenty of accomplishment. That's why students of the U. S. School of Music get ahead *twice as fast — three times as fast* as those who study old-fashioned plodding methods.

You don't need any special "talent." Many of the half million who have already become accomplished players never dreamed they possessed musical ability. They only wanted to play some instrument—just like you — and they found they could quickly learn how this easy way. Just a little of your spare time each day is needed — and you enjoy every minute of it. The cost is surprisingly low — averaging only a few cents a day—and the price is the same for whatever instrument you choose. And remember you are studying right in your own home—without paying big fees to private teachers.

Don't miss any more good times. Learn now to play your favorite instrument and surprise all your friends! Change from a wallflower to the center of attraction. Music is the best thing to offer at a party—musicians are invited everywhere. Enjoy the popularity you have been missing. Get your share of the musician's pleasure and profit! Start Now!

What Instrument For You?

Piano	Violin
Organ	Clarinet
Ukulele	Flute
Cornet	Saxophone
Trombone	Harp
Piccolo	Mandolin
Guitar	'Cello

Hawaiian Steel Guitar
Sight Singing
Piano Accordion
Italian and German Accordion
Voice and Speech Culture
Harmony and Composition
Drums and Traps
Automatic Finger Control
Banjo (Plectrum, 5-String or Tenor)

Free Booklet and Demonstration Lesson

If you are in earnest about wanting to join the crow of entertainers and be a "big hit" at any party—if you really *do* want to play your favorite instrument, to become a performer whose services will be in demand—fill out and mail the convenient coupon asking for our Free Booklet and Free Demonstration Lession. These explain our wonderful method fully and show you how easily and quickly you can learn to play at little expense. The booklet will also tell you all about the amazing new *Automatic Finger Control*. Instruments are supplied when needed—cash or credit. U. S. School of Music, 505 Brunswick Bldg., New York City.

U. S. SCHOOL OF MUSIC
505 Brunswick Bldg., New York City.

Please send me your free book, "Music Lessons in Your Own Home," with introduction by Dr. Frank Crane, Free Demonstration Lesson, and particulars of your easy payment plan. I am interested in the following course:

.....

Have you above instrument?.....

Name .....
(Please Write Plainly)

Address .....

City ..... State.....